

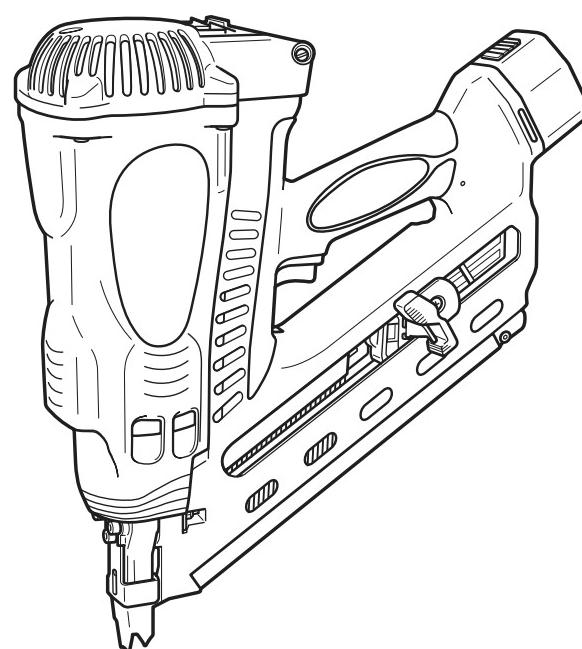
**GAS STRIP NAILER  
NR 90GC**

MODEL

**NR 90GC**

**Hitachi  
Power Tools**

**TECHNICAL DATA  
AND  
SERVICE MANUAL**



LIST No. E025

Sept. 2005

N

REMARK:

Throughout this TECHNICAL DATA AND SERVICE MANUAL, a symbol is used in the place of company name and model name of our competitor. The symbol utilized here is as follows:

Symbols Utilized	Competitors	
	Company Name	Model Name
P	Paslode	IMCT

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Assembly diagram for NR 90GC

## **1. PRODUCT NAME**

Hitachi 90 mm (3-1/2") Gas Strip Nailer, Model NR 90GC

## **2. MARKETING OBJECTIVE**

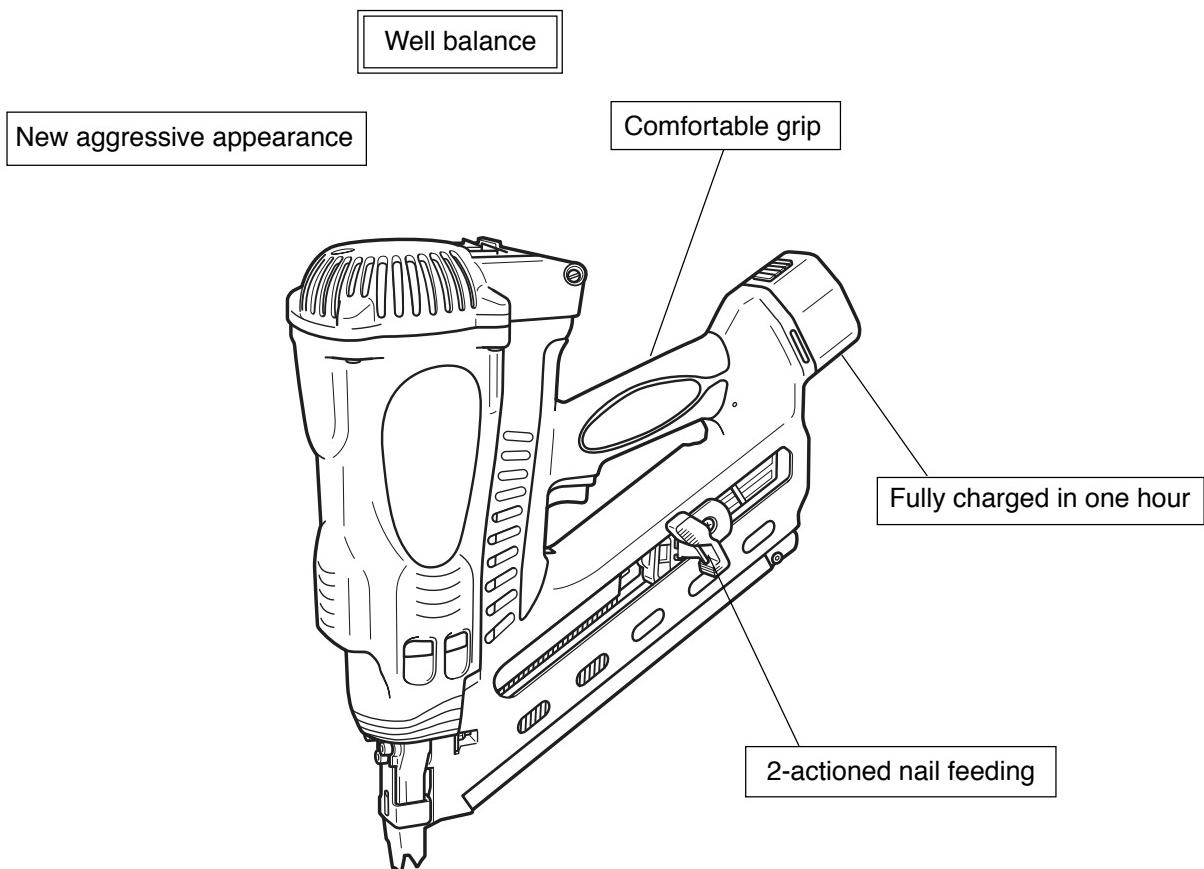
Today, one company has been monopolizing the gas nailer markets. We will enter the largest-scale clipped head (D-head) nailer market with the new Model NR 90GC gas strip naler to expand our market share. The main features of the Model NR 90GC are as follows:

- (1) The battery is located at the end of the handle for well balance.
- (2) New aggressive appearance
- (3) 2-actioned nail feeding
- (4) Comfortable grip
- (5) Fully charged in one hour

## **3. APPLICATIONS**

- Floor and framing
- Truss build-up, window build-up
- Subflooring and roof decking
- Wall sheathing
- Mobile home and modular housing construction

## **4. SELLING POINTS**



## 5. SPECIFICATIONS

### 5-1. Specifications

#### (1) Gas nailer

Model	NR 90GC	
Driving system	Reciprocating piston type	
Weight	3.5 kg (7.7 lbs.)	
Dimensions (Length x Height x Width)	347 mm x 353 mm x 108 mm (13-21/32" x 13-29/32" x 4-1/4")	
Nail feed system	Spiral spring	
Nail capacity	37 nails (1 strip)	
Packaging	Plastic case	
Package dimensions (Length x Height x Width)	500 mm x 460 mm x 150 mm (19-11/16" x 18-5/32" x 5-29/32")	
Standard accessories	- For North America - Safety glasses (Code No. 875769) Battery (Code No. 324147) Charger UC 7SD Case (Code No. 885360) Allen wrench for M5 screw (Code No. 944458)	- For Europe - Safety glasses (Code No. 885549) Battery (Code No. 324148) Charger UC 7SD Case (Code No. 885360) Allen wrench for M5 screw (Code No. 944458)
Optional accessories	- For North America - Lubricant oiler (A) (Code No. 885546) Fuel cell (Code No. 728980) Grease (Code No. 317918)	- For Europe - Lubricant oiler (A) (Code No. 885246) Fuel cell (Code No. 753600) Grease (Code No. 317918)

### 5-2. Explanation of the Nailing Action

To meet the requirements of "ANSI SNT-101-2002" (USA), the Model NR 90GC is equipped with FULL SEQUENTIAL ACTUATION MECHANISM.

- FULL SEQUENTIAL ACTUATION MECHANISM

First, press the pushing lever against the wood; next, pull the trigger to drive the nail. After nailing once, nailing will not be possible again until the trigger is released and pressed again.

### 5-3. Nail Selection

The Model NR 90GC utilizes D-head (clipped head) nails collated with paper tape.

Applicable nail dimensions are shown below. Please note that screw-type nails cannot be used with the Model NR 90GC.

**CAUTION:** Ensure that nails are as specified in Fig. 1. The Model NR 90GC utilizes D-head (clipped head) nails collated at an angle of 35 degrees which are the same as the nails utilized by P. However, some D-head nails made by other makers are collated at a different angle of 26 degrees. Use of such nails will cause clogging of nails and subsequent damage to the nailer. Also avoid use of misaligned nails or nails collated with a weak paper tape. Do not use P's 2" Roundrive nail (eccentric full round head nail) with the Model NR 90GC because it may cause bending of nails. It is recommended to use genuine HITACHI nails to ensure satisfactory driving quality.

Paper tape collated strip nails D-head (clipped head) nails	
Minimum	Maximum
<p>6.8 mm (0.266")</p> <p>50 mm (2")</p> <p>3.0 mm (0.120")</p>	<p>7.7 mm (0.303")</p> <p>90 mm (3-1/2")</p> <p>3.3 mm (0.131")</p>
<p>35°</p> <p>Paper tape</p>	<p>Max. 4.6 mm (0.181")</p> <p>3.3 mm x 90 mm nails (0.131" x 3-1/2")</p> <p>Max. 31.7 mm (1.248")</p>

Fig. 1 Dimensions of nail

## 5-4. Nail Driving Force

In contrast to a pneumatic nailer, the output energy of a gas nailer cannot be adjusted optionally. However, the output energy is changed because environmental conditions such as ambient temperature, humidity and altitude have an effect on its combustion. Figure 2 shows a comparison between the pneumatic nailers Models NR 90AD and others and the gas nailer Model NR 90GC on the output energy range. The output energy of the Model NR 90GC changes within the operating range from 5.7 kg/cm<sup>2</sup> (81.5 psi) to 8.5 kg/cm<sup>2</sup> (120 psi) as a result of conversion to the air pressure of the pneumatic nailer Model NR 90AD. Choose suitable nails and workpieces according to the output energy of the nailer.

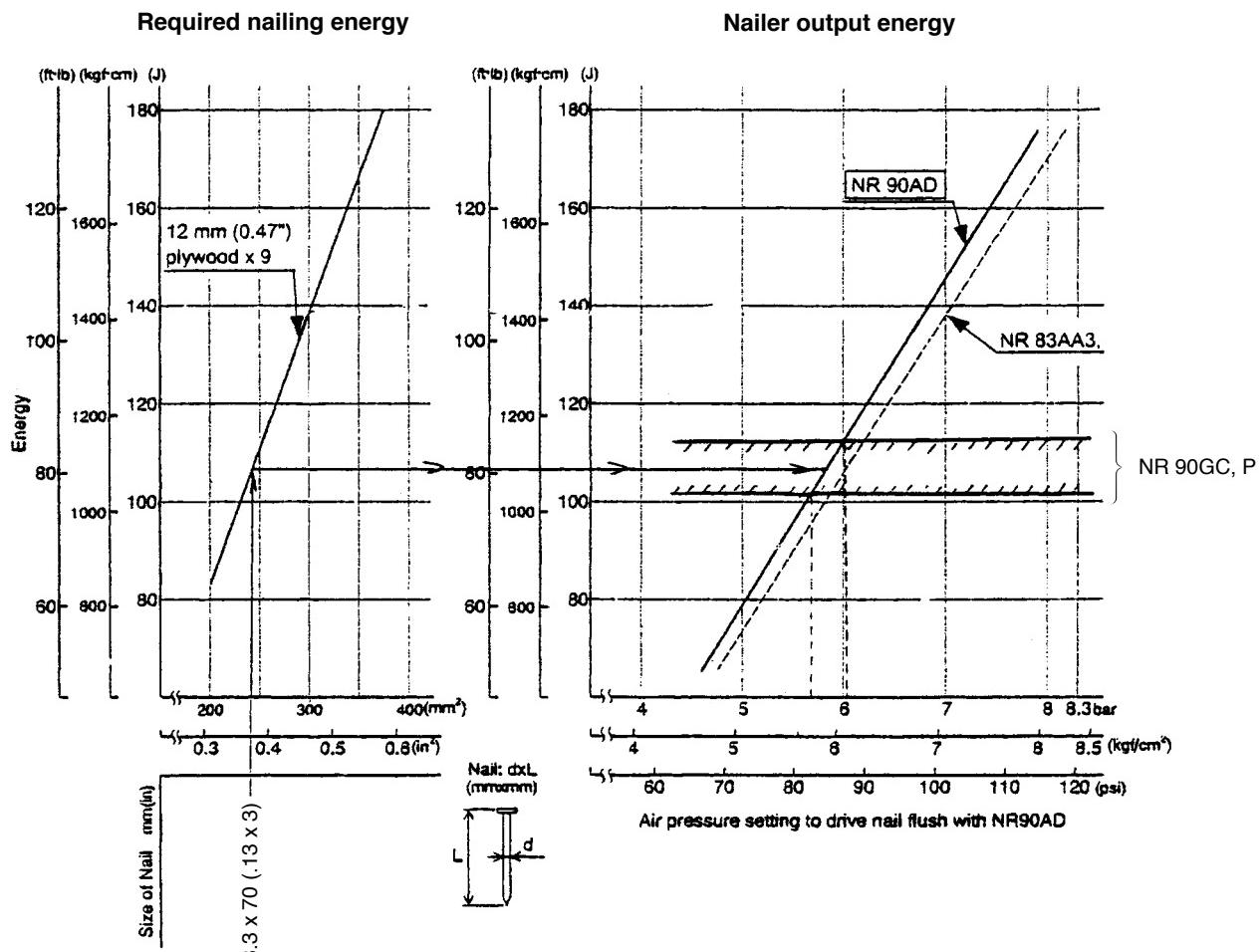


Fig. 2 Required nailing energy and nailer output energy

## 6. COMPARISONS WITH SIMILAR PRODUCTS

Maker	HITACHI	P	
Model	NR 90GC		
Weight (tool, battery, fuel cell)	3.5 kg (7.7 lbs.)	3.4 kg (7.5 lbs.)	
Dimensions (L x H x W)	347 mm x 353 mm x 108 mm (12-21/32" x 13-29/32" x 4-1/4")	310 mm x 343 mm x 110 mm (12-3/16" x 13-1/2" x 4-11/32")	
Nail capacity	37 nails (1 strip)	37 nails (1 strip)	
Magazine type	Rear loading	Rear loading	
Driving depth adjusting mechanism	With wrench	Tool not required	
Handle grip	Rubber	Rubber	
Driving method	Single action	Single action	
Hook	Provided	Provided	
Feeder	2-actioned nail feeding	2-actioned nail feeding	
Battery voltage	7.2 V	6 V	
Charge	1 h	2 h	
Applicable nails (Clip head)	Dia. Length	3.0 mm – 3.3 mm (0.120" – 0.131") 50 mm – 90 mm (2" – 3-1/2")	2.9 mm – 3.3 mm (0.113" – 0.131") 50 mm – 90 mm (2" – 3-1/2")
Fuel cell dimension		31.5 mm dia. x 167	31.5 mm dia. x 167
Fuel cell life		1200 nails	1200 nails (USA, Canada) 1000 nails (Europe)

	HITACHI	P	
		USA	EU
<compatible with Paslode Fuel cell>			
Can size Dia. (mm)	31.5	31.5	31.5
Height (mm)	165	165	165
Ingredients	n-Butane Propane	Propylene 1-Butene	n-Butane Propylene
Contents	40 g	40 g	30 g
Fuel Cell Life(nails/cell)	1300	1200	1000
Ambient temperature (degree C.)	0 – 40 *1	-7 – 49	--- (+5 – 40)
Max. temperature for storage (degree C.)	50	49	50
Part No. for USA for EU	728-980/2 cells 753-600/1 cell	---	---

\*1; Because of gas restriction for aerosol standard

## 7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model NR 90GC Nailer by all of our customers, it is very important that at the time of sale the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Warning Label attached to each tool.

### 7-1. Handling Instructions

Although every effort is made in each step of design, manufacture, and inspection to provide protection against safety hazards, the dangers inherent in the use of any pneumatic tool cannot be completely eliminated.

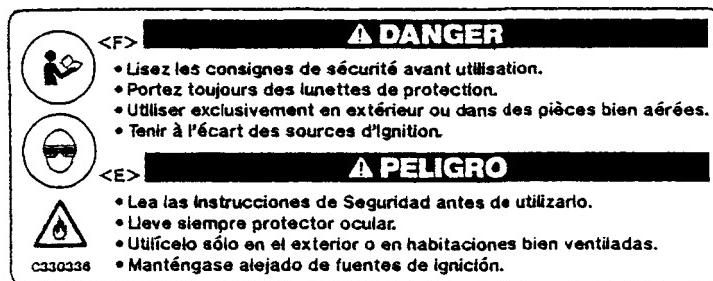
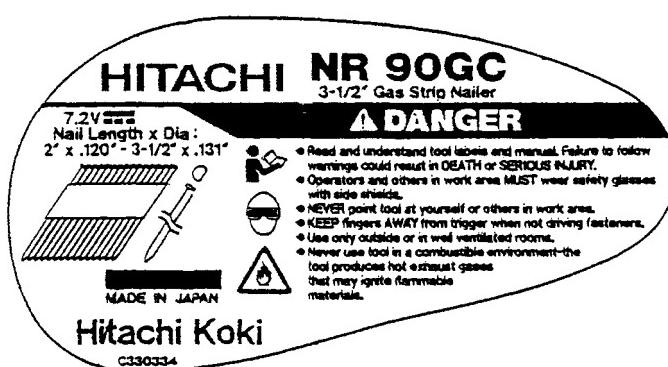
Accordingly, general precautions and suggestions for use of pneumatic tools, and specific precautions and suggestions for the use of the pneumatic nailer are listed in the Handling Instructions to enhance the safe, efficient use of the tool by the customer.

Salespersons must be thoroughly familiar with the contents of the Handling Instructions to be able to offer appropriate guidance to the customers during sales promotion.

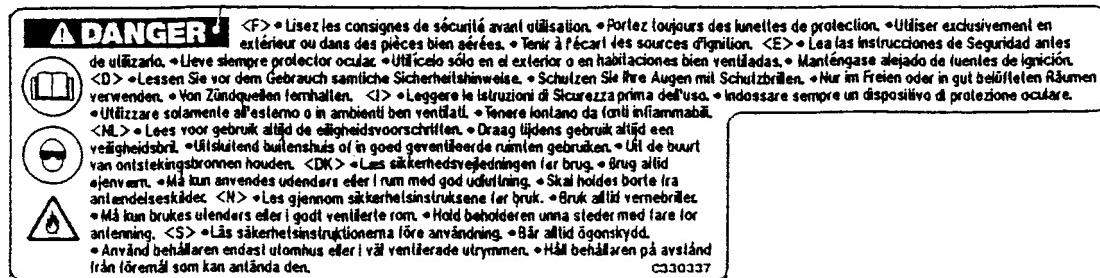
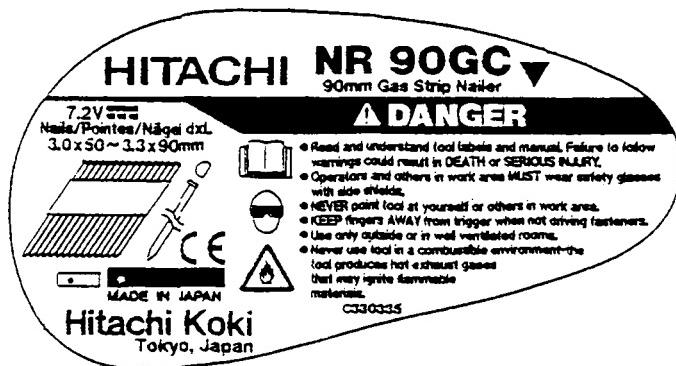
### 7-2. Warning Label

Each Model NR 90GC unit is provided with a Warning Label (illustrated below) which lists basic safety precautions in its use. Carefully ensure that customers fully understand and follow these precautions before using the tool.

For the U.S.A. and Canada



For Europe



Fuel cell

For the U.S.A. and Canada

OK Befestigung D-47802 Krefeld, Germany [www.okbefestigung.de](http://www.okbefestigung.de) PATENT PENDING

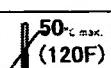
Contents: Propane/Butane liquefied [100] 3 e Made in Germany 40 g 80 ml



#### DANGER - EXTREMELY FLAMMABLE CONTENTS UNDER PRESSURE.



- Keep away from temperatures over 50°C < 120° F > (for ex., sun radiation).
- Do not damage, puncture or burn even after use.



#### KEEP OUT OF THE REACH OF CHILDREN.



#### IN USE, MAY FORM FLAMMABLE/EXPLOSIVE VAPOR-AIR MIXTURE.



- Do not use near flames or spray on heated surface.
- Keep away from ignition sources.
- Use only outside or well ventilated rooms.
- keep container in well ventilated place.
- No smoking.



KEEP AWAY FROM SKIN AND EYES and DO NOT BREATHE GAS,  
for SKIN AND EYE IRRITANT and VAPOR HARMFUL.

DO NOT REFILL.

For EU

OK Befestigung D-47802 Krefeld, Germany [www.okbefestigung.de](http://www.okbefestigung.de) PATENT PENDING

Contents: Propane/Butane liquefied [100] 3 e Made in Germany 40 g 80 ml

**DANGER - EXTREMELY FLAMMABLE** • Contents under pressure, keep away from temperatures over 50°C < 120° F > (for ex., sun radiation). • Do not use near flames or spray on heated surfaces.

- Use only outside or in well ventilated rooms. • Throw away only at designated areas.
- Keep out of the reach of children. • Do not damage, puncture or burn even after use.
- In use, may form flammable/explosive vapor - air mixture. • Keep container in a well ventilated place.
- Do not breathe gas. • Keep away from ignition sources. • No smoking. • Do not refill.

### **7-3. Related Laws and Regulations**

As nailers and staplers are designed to instantaneously drive nails and staples, there is an ever-present danger of misfiring and subsequent possible serious injury. Accordingly, close attention in handling is absolutely necessary at all times. Carefully ensure that the customer is fully aware of the precautions listed in the Handling Instructions provided with each unit.

While there are no specific safety regulations, there are related items in various general safety regulations with which the salespersons should be familiar in order to properly advise the customer. Please check your national and/or local regulations for applicable items. Some applicable items are outlined below.

The U.S.A:

OSHA	1926.102 Eye and face protection
	1926.302 Power-operated hand tools
ANSI SNT-101-2002	Portable, Compressed-Air-Actuated, Fastener Driving Tools-Safety Requirements for

The Europe

EN 712-13 2000	Hand-held-non-electric power tools
EN 50260-1 2002	Safety of hand-held battery-powered motor operated tools and battery packs < Certificate No. FI 21611 by SGS Fimko Ltd./Finland >
75/324/EEC 1975	Aerosol Dispensers At 50°C, the pressure in the aerosol dispenser must not exceed 12 bars ≈ 8 bars/35°C

Cautions in handling the fuel cell:

First Aid:

If contents inhaled, move to area with fresh air.  
Contact a doctor if symptoms persist.  
If contents come in contact with skin, wash  
the affected area with soap and warm water  
then apply skin cream.  
If contents come in contact with eyes, flush open eyes  
with water. Contact a doctor if irritation continues.

How to discharge gases from the canister:

- (1) Separate the metering valve from the canister;
- (2) Push the extended stem vertically to discharge  
remaining fuel gas;
- (3) After the remaining fuel gas has been discharged,  
to discharge remaining propellant gas, strongly  
push the stem down, vertically, in order to  
puncture the cap of the canister. When punctured,  
remaining propellant gas will be discharged.

Carton box, small

Storage

To Retailers,

- Flammable contents. Container under pressure.
- Store in well-ventilated area.
- Do not store above 50°C (120°F), e.g. sun radiation.
- Do not be displayed in shop windows.
- Do not store in passages, entry halls, near doors/exit or attic.
- Do not store together with pyrotechnical goods.
- The quantity stored in sales rooms should not exceed daily sales.
- Store rooms must not take more than 20 m<sup>2</sup> of room surface.
- A fire extinguisher of 6 kg, class A, B, C must be available.
- Packages should be stacked up not to fall to the ground.
- Do not expose to an open flame and sparks.
- Do not puncture or open the fuel cell.
- Keep out of reach of children.

Carton box, large



Transportation

Shipment per mail is not allowed.

- Transportation of small quantities for own use in private car is allowed without shipping papers and emergency card.
- Observe temperature limit of 50°C (120°F).
- Goods must be accompanied by transport emergency card for road; class 2.1, UN No. 1950.  
UN No.: United Nation IMDG  
(International Maritime Dangerous Goods)



Aerosols

## **8. MECHANISM AND OPERATION PRINCIPLE**

### **8-1. Mechanism**

The Model NR 90GC is a nailer that drives nails into workpieces with the aid of fuel combustion energy. This is the Hitachi's first gas strip nailer and there is no similarity between the Model NR 90GC and other Hitachi nailers in construction. Its principle of operation is completely different from that of a pneumatic nailer except the magazine section. The Model NR 90GC is equipped with a fuel cell and a battery in order to output combustion energy in addition to the electric components such as electric circuits, motor and electric switches.

As illustrated in Fig. 8, the Model NR 90GC can be generally divided into three sections: Output section, head section and handle section. Features of the main parts are described below.

- Output section (Housing section):

This section outputs fuel combustion energy. The piston reciprocates to drive nails in the same manner as a pneumatic nailer. The piston reciprocates in the cylinder. Under the piston, there is a driving unit. The combustion chamber is encased in a chamber and burns fuel to output combustion energy. Outputted combustion energy is applied to the top of the piston then the piston is suddenly lowered to drive nails at the driving unit. The nails are fed from the magazine unit in the handle section.

- Head section (Cylinder head section):

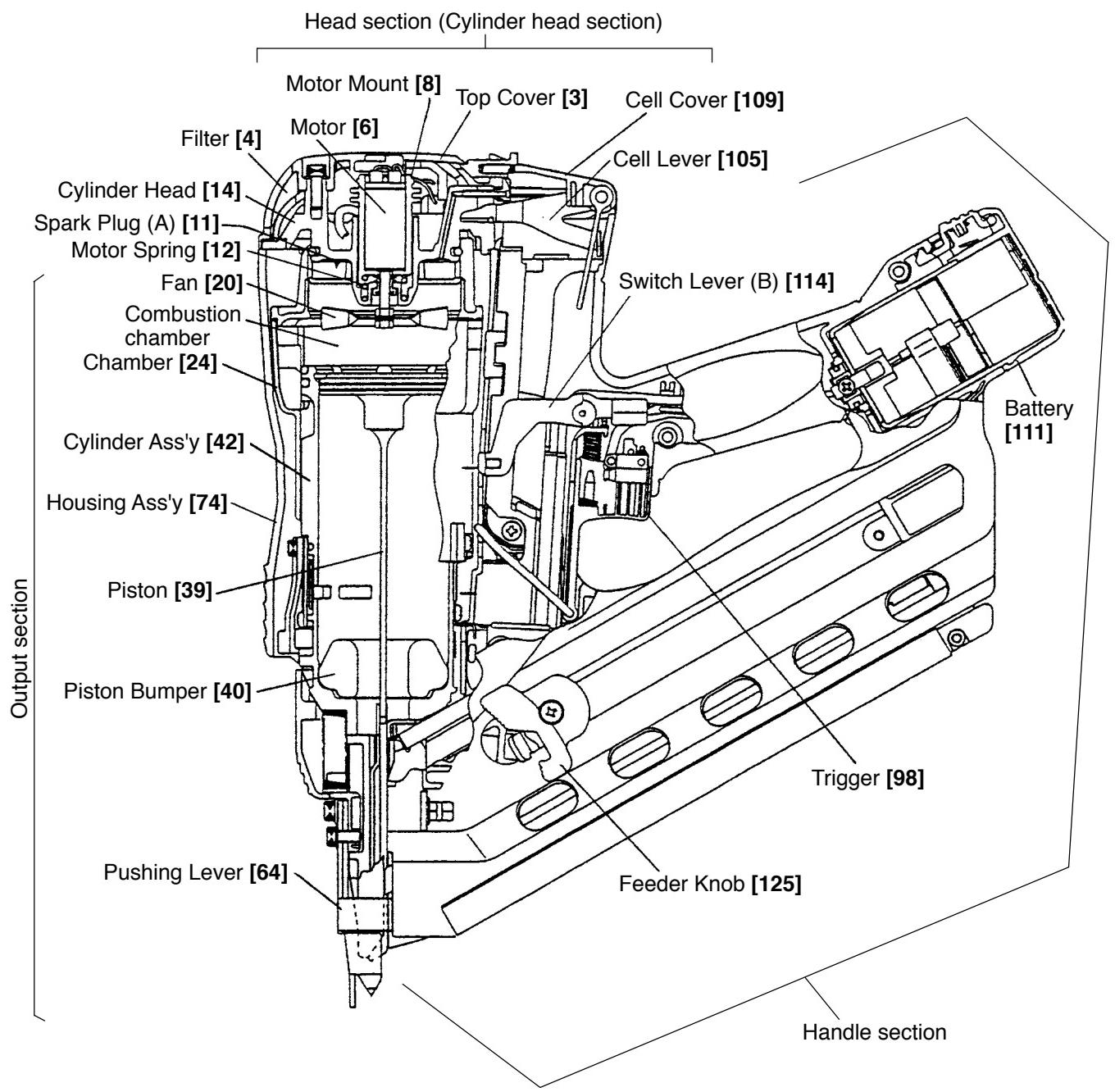
This section is at the top of the combustion chamber in the output section. There is a fan to stir fuel and fuel is fed from the fuel cell to the combustion chamber in this section. The fan is mounted to the motor.

The motor is held in the motor mount and secured to the center of the cylinder head through the spring.

This spring absorbs shock to the motor. There is a spark plug beside the fan. The top cover at the top of the main body covers the filter. The cell lever feeds fuel from the fuel cell to the combustion chamber. Its rotation is supported.

- Handle section:

This section is comprised of a magazine unit to feed nails to the driving unit, battery holder, handle unit, fuel cell holder and electrical wiring. The construction of the magazine unit is similar to that of a pneumatic nailer. There is a controller behind the magazine unit in order to control electric signals. The handle unit contains a trigger with a built-in spark switch. Switch lever (B) is located at the top of the trigger in order to turn on the spark switch. The electrical wiring connects the battery, trigger switch and fan switch. Upon receipt of each switch signal by the controller, the motor in the head section rotates and the spark plug discharges.



**Fig. 3**

## 8-2. Principle of Operation

### (1) Before nailing

Fuel is not charged into the nailer in the initial state. The combustion chamber is released to the atmosphere (Fig. 4).

### (2) When nailing

#### 1) Push up the Pushing Lever [64].

Then the nailer starts operation in the following order (Fig. 5).

- ① The Switch Plate [34] on the Chamber [24] pushes the Switch Arm [82] to turn on the fan switch. The Fan [20] in the combustion chamber rotates.
- ② The Chamber Head [22] is sealed by the O-ring [15] and the Chamber [24] surface is sealed by the O-ring [36] simultaneously. Thus the combustion chamber is cut off from the atmosphere.
- ③ The convex portion of the Chamber [24] pushes up the Tension Plate [113] on Switch Lever (B) [114] to rotate Switch Lever (B) [114].
- ④ The protrusion of the Chamber Head [22] pushes up the tip of the Cell Lever [105] to rotate it. Thus the Cell Lever [105] pushes the back of the fuel cell to spray fuel into the combustion chamber.

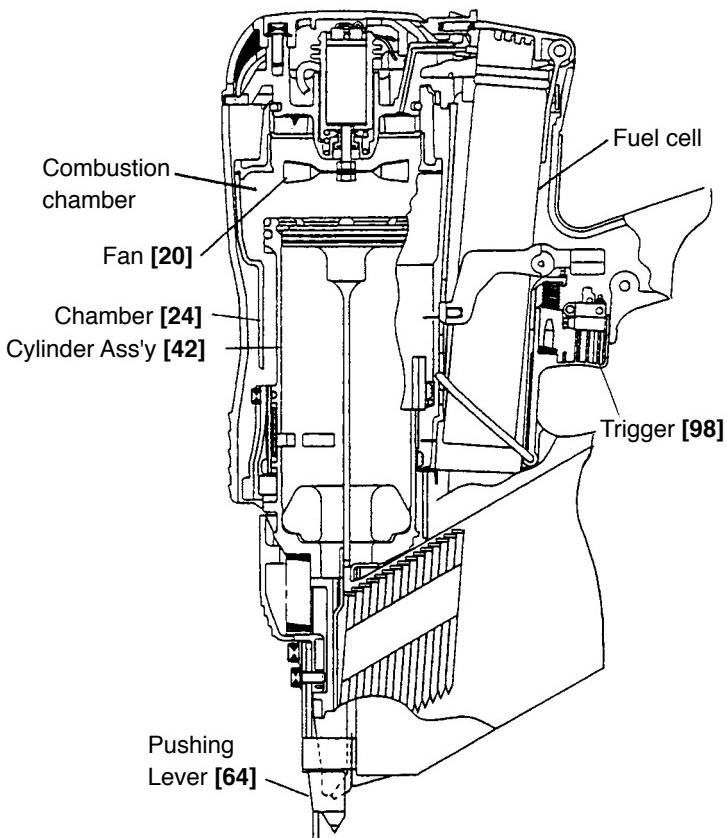


Fig. 4

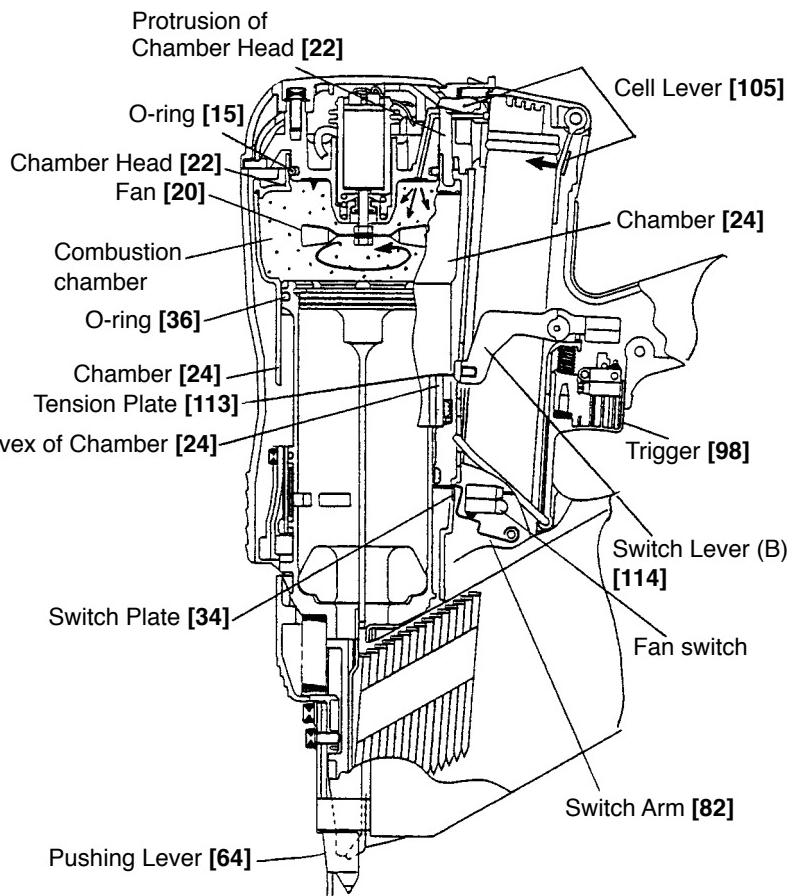


Fig. 5

2) When the Trigger [98] is depressed, the switch in the Trigger [98] contacts the end of Switch Lever (B) [114] and turns on. Then the spark plug in the combustion chamber discharges (Fig. 6).

Fuel burns and a sudden expansion occurs. The Piston [39] is lowered to drive nails (Fig. 7).

When the Piston [39] passes the hole of the Cylinder Ass'y [42], combustion gas is partially released into the atmosphere through the Lead Valve [45]. Because the Lead Valve [45] is a nonreturn valve, no air comes in the Cylinder Ass'y [42]. When the Piston [39] contacts the Piston Bumper [40], combustion of fuel is almost completed.

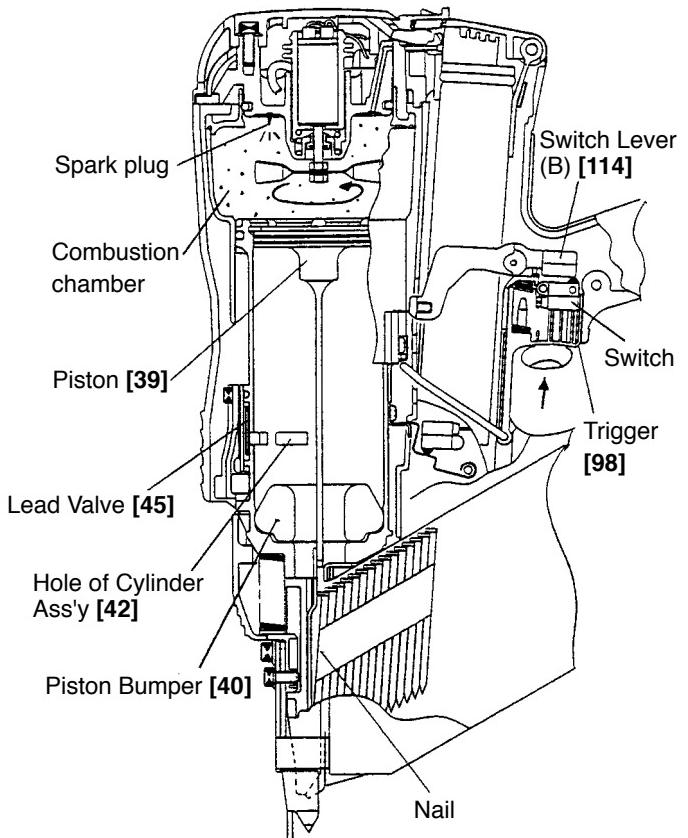


Fig. 6

### (3) During return

When the Trigger [98] is depressed, the Chamber Lock Bar [100] at the bottom of the Trigger [98] is positioned under the Chamber [24] to prevent the Chamber [24] from lowering while the Trigger [98] is depressed. The Chamber [24] is sealed by the O-rings [15] and [36] to cut off the atmosphere (Fig. 7). Because combustion gas is partially released into the atmosphere through the Lead Valve [45], the pressure of the upper portion of the Piston [39] becomes lower than the atmospheric pressure. The Piston [39] is returned to the initial position by the pressure difference between the upper portion and the lower portion of the Piston [39].

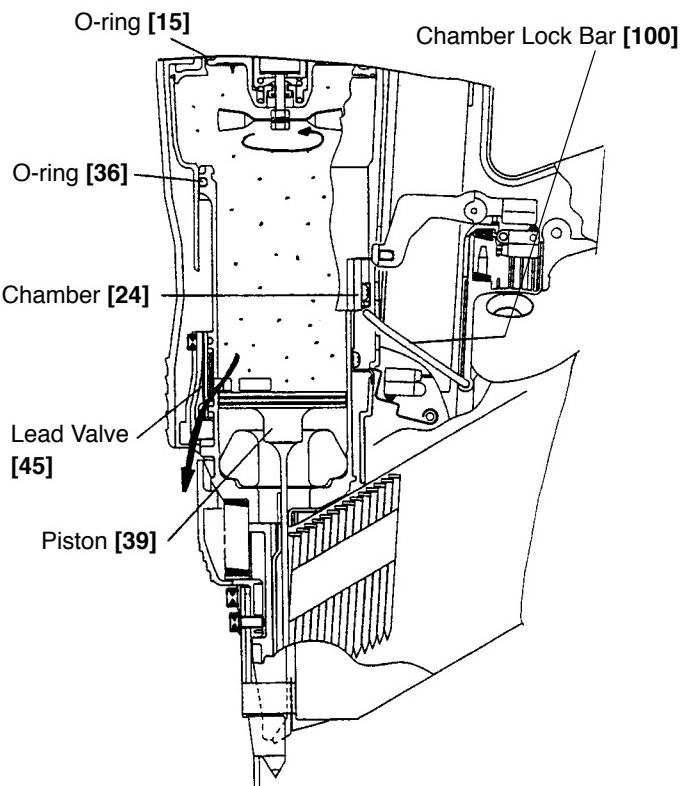


Fig. 7

#### (4) Discharging and cooling

When the Trigger [98] is released, the Chamber Lock Bar [100] is returned from the position under the Chamber [24] to the original position. Thus the Chamber [24] and the Pushing Lever [64] are placed in the initial state and sealing by the O-rings [15] and [36] is released. When the Fan [20] rotates, air passes through the Filter [4], enters the combustion chamber and goes to the outside in order to discharge gas and cool the combustion chamber (Fig. 8).

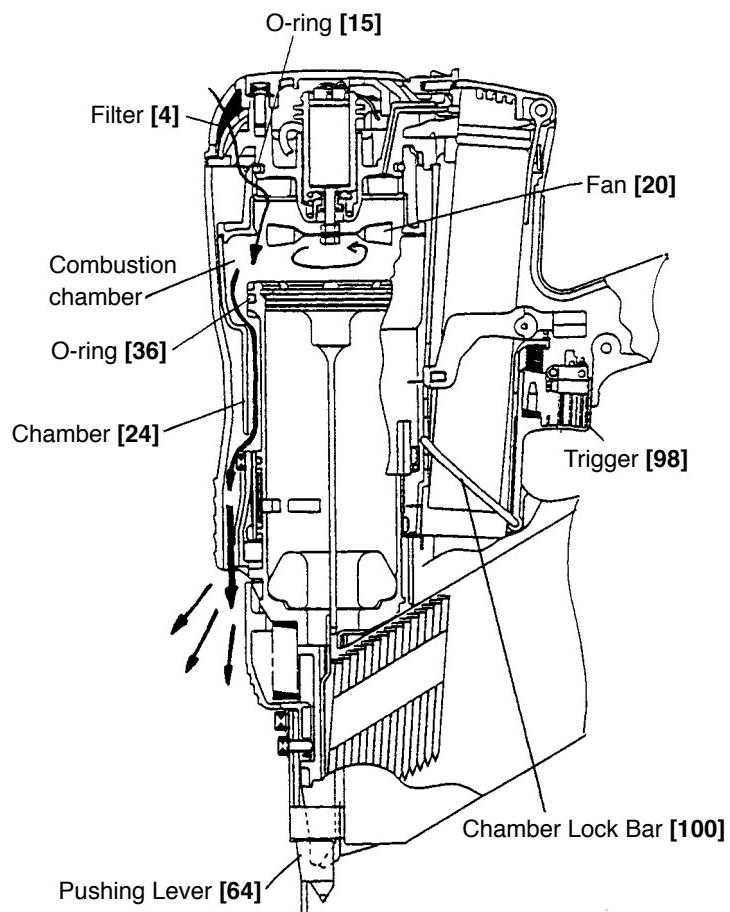


Fig. 8

## (5) Full sequential action mechanism

Press the Pushing Lever [64] against the workpiece and move the Chamber [24] to the uppermost position. Then the nailer operates only when the Trigger [98] is depressed. The nailer does not operate if the pressing amount of the Pushing Lever [64] is insufficient or if the Pushing Lever [64] is pressed after depressing the Trigger [98].

### ○ When depressing the Trigger [98] after pressing the Pushing Lever [64]

The convex portion of the Chamber [24] pushes up the Tension Plate [113] and rotates when the Chamber [24] reaches the uppermost position. Therefore, the end of Switch Lever (B) [114] is moved toward the Trigger [98] (Fig. 9). The Lever Stopper [116] at the side of the Trigger [98] does not prevent Switch Lever (B) [114] from rotating (Fig. 10). The switch is turned on and nails are driven by depressing the Trigger [98].

### ○ When pressing the Pushing Lever [64] after depressing the Trigger [98]

When depressing the Trigger [98], the Lever Stopper [116] is deformed by the Trigger [98] and the end of the Lever Stopper [116] is positioned toward Switch Lever (B) [114] (Fig. 11).

Then the convex portion of the Chamber [24] pushes up the Tension Plate [113] when the Pushing Lever [64] is pressed. However, the Lever Stopper [116] prevents Switch Lever (B) [114] from rotating. Thus the switch of the Trigger [98] is not turned on.

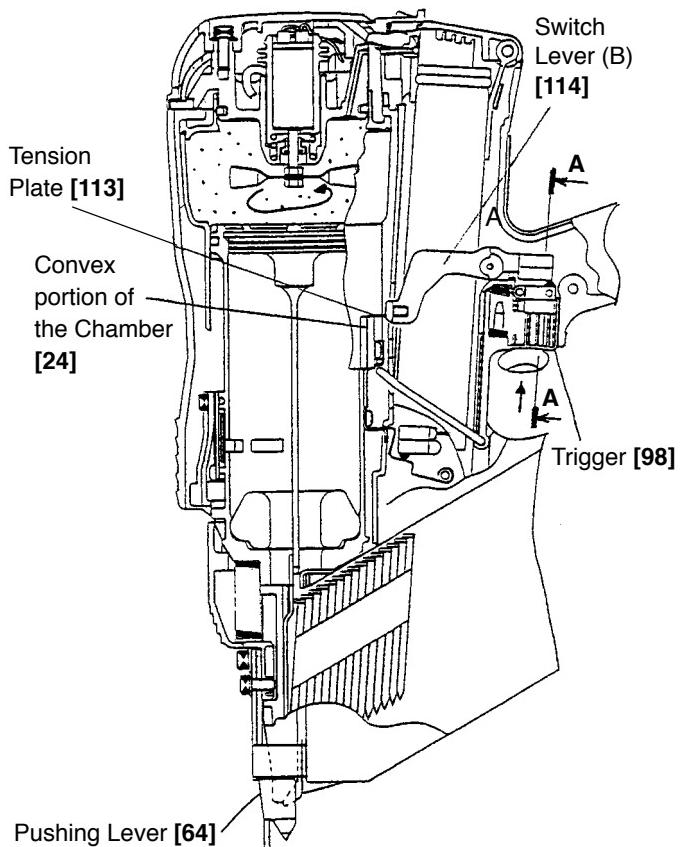


Fig. 9

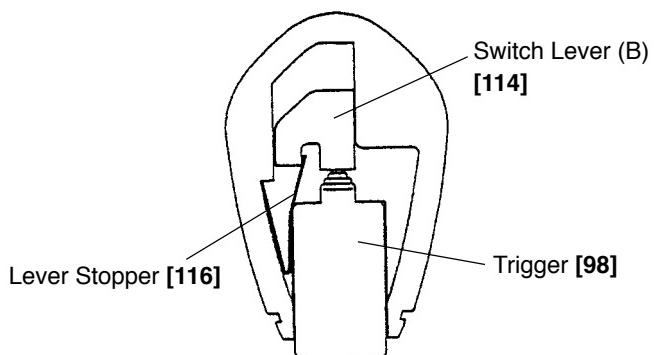


Fig. 10 (A - A)

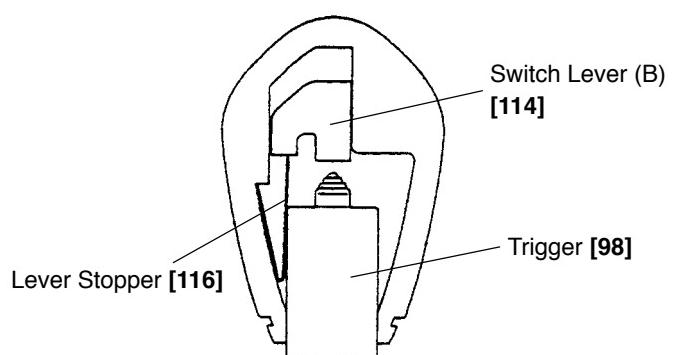


Fig. 11 (A - A)

## 9. TROUBLESHOOTING GUIDE

### 9-1. Problems Caused by Improper Handling

Following table shows the problems that are apt to occur. These problems are not caused by abnormality of the nailer but improper handling. Please instruct the customers to use the nailer properly according to the table.

Improper handling	Problem	Cause	Remedy
The Trigger [98] is depressed insufficiently.	<ul style="list-style-type: none"> <li>No combustion occurs.</li> <li>No nail is driven.</li> </ul>	<ul style="list-style-type: none"> <li>The Piston [39] is lowered.</li> </ul>	<ul style="list-style-type: none"> <li>Return the Piston [39] to the uppermost position with a flat-blade screwdriver.</li> <li>Keep depressing the Trigger [98] securely about 0.5 second after combustion.</li> </ul>
The Pushing Lever [64] is pressed while depressing the Trigger [98] slightly.	<ul style="list-style-type: none"> <li>No combustion occurs.</li> </ul>	<ul style="list-style-type: none"> <li>The spark switch is not turned on.</li> </ul>	<ul style="list-style-type: none"> <li>Press the Pushing Lever [64] without depressing the Trigger [98], then depress the Trigger [98].</li> </ul>
The Battery [111] is not set or set improperly.	<ul style="list-style-type: none"> <li>The nailer does not start.</li> </ul>	<ul style="list-style-type: none"> <li>No electricity is sent.</li> </ul>	<ul style="list-style-type: none"> <li>Set the Battery [111] properly to the nailer.</li> </ul>
The nailer is used while the battery indicator light is red (Fig. 12).	<ul style="list-style-type: none"> <li>The output is decreased.</li> </ul>	<ul style="list-style-type: none"> <li>The number of revolutions of the Fan [20] is low.</li> </ul>	<ul style="list-style-type: none"> <li>Charge the Battery [111].</li> </ul>
The nailer is used with the Filter [4] clogged.	<ul style="list-style-type: none"> <li>The output is decreased.</li> <li>The nailer produces heat.</li> </ul>	<ul style="list-style-type: none"> <li>Discharging and cooling are insufficient.</li> </ul>	<ul style="list-style-type: none"> <li>Clean the Filter [4] (Fig. 13).</li> </ul>
The fuel cell is not set or set improperly.	<ul style="list-style-type: none"> <li>No combustion occurs.</li> </ul>	<ul style="list-style-type: none"> <li>No fuel is fed.</li> </ul>	<ul style="list-style-type: none"> <li>Set the fuel cell properly (Fig. 14).</li> </ul>
The metering valve of the fuel cell is set improperly.	<ul style="list-style-type: none"> <li>No combustion occurs.</li> </ul>	<ul style="list-style-type: none"> <li>No fuel is fed.</li> </ul>	<ul style="list-style-type: none"> <li>Set the metering valve of the fuel cell properly (Fig. 15).</li> </ul>
The Pushing Lever [64] is pressed insufficiently.	<ul style="list-style-type: none"> <li>No combustion occurs.</li> </ul>	<ul style="list-style-type: none"> <li>No fuel is fed.</li> <li>The switch of the Fan [20] is not turned on.</li> </ul>	<ul style="list-style-type: none"> <li>Press the Pushing Lever [64] securely.</li> </ul>
The fuel cell is short of fuel.	<ul style="list-style-type: none"> <li>No combustion occurs.</li> </ul>	<ul style="list-style-type: none"> <li>No fuel is fed.</li> </ul>	<ul style="list-style-type: none"> <li>Use a new fuel cell.</li> </ul>

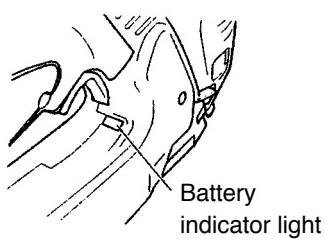


Fig. 12

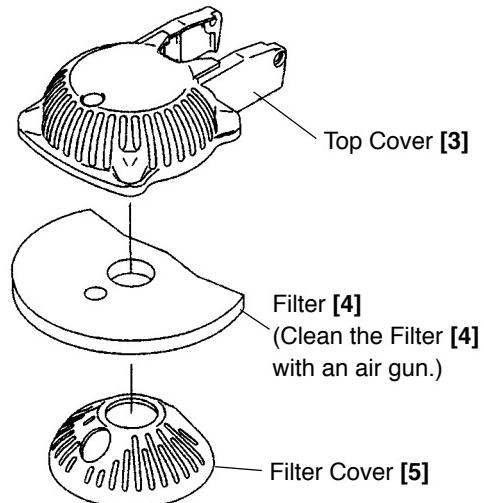


Fig. 13

Insert the stem of fuel cell into the hole of adapter.

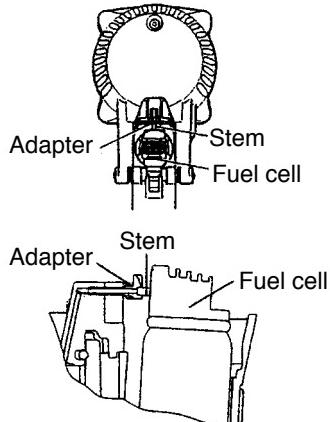


Fig. 14

To attach the metering valve to a fuel cell:

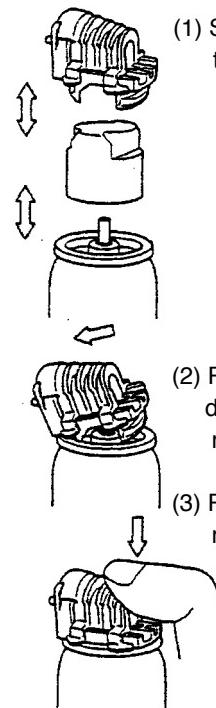


Fig. 15

#### Checking the fuel cell

Problem	Possible cause	Inspection method	Remedy
Fuel is not sprayed.	<ul style="list-style-type: none"> <li>Fuel is leaked.</li> <li>There is no fuel.</li> </ul>	<ul style="list-style-type: none"> <li>The metering valve is not set properly.</li> <li>Press the stem five times or more with the fuel cell held upright to check whether fuel is sprayed or not.</li> </ul>	<ul style="list-style-type: none"> <li>Set the metering valve properly (the metering valve may be secured by rotating it).</li> <li>Replace the metering valve with new one.</li> <li>Replace the fuel cell with new one.</li> </ul>
Fuel is sprayed but no combustion occurs.	<ul style="list-style-type: none"> <li>The bag in the fuel cell is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Fuel is not sprayed when holding the fuel cell upright but sprayed when holding the fuel cell horizontally.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the fuel cell with new one.</li> </ul>
	<ul style="list-style-type: none"> <li>Insufficient sealing of the cup and the stem in the metering valve.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether fuel is leaked or not by keeping the stem pressed.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the metering valve with new one.</li> </ul>
	<ul style="list-style-type: none"> <li>The nailer is left under a high temperature condition. The nailer is left in direct sunlight or nails are driven continuously. &lt;Excessively high concentration of gas&gt;</li> </ul>	<ul style="list-style-type: none"> <li>The main body is hot due to the combustion heat.</li> </ul>	<ul style="list-style-type: none"> <li>Cool the main body and the fuel cell.</li> <li>Replace the fuel cell with new one.</li> </ul>
	<ul style="list-style-type: none"> <li>The nailer is left under a low temperature condition. 0°C or lower temperature &lt;Low concentration of gas&gt;</li> </ul>	<ul style="list-style-type: none"> <li>The sprayed fuel is in a liquid state.</li> </ul>	<ul style="list-style-type: none"> <li>Warm up the fuel cell. Instruct the customers necessary measures such as putting the fuel cell in a pocket or wrapping the fuel cell in a thermal insulating material.</li> </ul>

Problem	Possible cause	Inspection method	Remedy
Fuel is sprayed but no combustion occurs.	<ul style="list-style-type: none"> <li>The oxygen content of the air is low in a place such as highlands at an altitude of 1500 meters or more. &lt;Excessively high concentration of gas&gt;</li> </ul>	<ul style="list-style-type: none"> <li>A large amount of fuel is sprayed.</li> </ul>	<ul style="list-style-type: none"> <li>Use the nailer in a place where the altitude is under 1500 meters.</li> </ul>

## 9-2. Troubleshooting and Correction

### (1) Troubleshooting and correction in the case of gas nailers

The mechanism of a gas nailer to produce output is completely different from that of a pneumatic nailer.

Following table shows the troubleshooting and correction procedures inherent in gas nailers.

Problem	Possible cause	Inspection method	Remedy
No combustion occurs.	(Combustion section) <ul style="list-style-type: none"> <li>The Piston [39] is lowered.</li> </ul>	<ul style="list-style-type: none"> <li>Check the position of the Piston [39].</li> </ul>	<ul style="list-style-type: none"> <li>Return the Piston [39] to the uppermost position with a flat-blade screwdriver.</li> <li>Keep depressing the Trigger [98] securely until the nailing operation is completed.</li> </ul>
	<ul style="list-style-type: none"> <li>The outside air temperature and the altitude are out of the specifications.</li> </ul>	<ul style="list-style-type: none"> <li>Check the outside air temperature and the altitude.</li> </ul>	<ul style="list-style-type: none"> <li>Outside air temperature range: 0°C to 40°C</li> <li>Altitude: Under 1500 m (5000 feet)</li> </ul>
	<ul style="list-style-type: none"> <li>No fuel is fed.</li> </ul>	<ul style="list-style-type: none"> <li>Check that the fuel cell is set properly.</li> <li>Short of fuel in the fuel cell.</li> <li>The metering valve is not set properly to the fuel cell.</li> <li>The Cell Lever [105] is deformed.</li> <li>The Adapter [30] is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Set the fuel cell properly (Fig. 14).</li> <li>Replace the fuel cell.</li> <li>Set the metering valve to the fuel cell properly (Fig. 15).</li> <li>Replace the Cell Lever [105].</li> <li>The Adapter [30] is damaged.</li> </ul>
	<ul style="list-style-type: none"> <li>The Pushing Lever [64] cannot be pushed up.</li> </ul>	<ul style="list-style-type: none"> <li>The Pushing Lever [64] is deformed.</li> <li>Pushing Lever Arms (A) [60] and (B) [62] are deformed.</li> <li>The O-ring [15] is pinched.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the Pushing Lever [64].</li> <li>Replace Pushing Lever Arms (A) [60] and (B) [62].</li> <li>Mount the O-ring [15] properly.</li> </ul>
	<Electric section> <ul style="list-style-type: none"> <li>The battery indicator light does not light.</li> </ul>	<ul style="list-style-type: none"> <li>It automatically turns off if it is left with the Battery [111] set (for Europe).</li> <li>Low voltage.</li> </ul>	<ul style="list-style-type: none"> <li>Remove the Battery [111] and set it again.</li> <li>Perform charging.</li> </ul>
	<ul style="list-style-type: none"> <li>The Motor [6] does not rotate.</li> </ul>	<ul style="list-style-type: none"> <li>The Battery [111] is not set properly.</li> <li>The Battery [111] is faulty.</li> <li>The battery indicator light lights red.</li> <li>Connection failure between Internal Wire (A) [86] and the Controller [101].</li> <li>Connection failure between Internal Wire (A) [86] and the Motor [6].</li> <li>Break in Internal Wire (A) [86].</li> <li>The fan switch is faulty.</li> <li>The Switch Arm [82] is deformed.</li> <li>The Switch Arm [82] is deformed.</li> <li>The Motor [6] is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Set the Battery [111] properly.</li> <li>Replace the Battery [111].</li> <li>Charge the Battery [111].</li> <li>Connect properly (Fig. 16).</li> <li>Connect properly (Fig. 17).</li> <li>Replace Internal Wire (A) [86].</li> <li>Replace Internal Wire (A) [86].</li> <li>Replace the Switch Arm [82].</li> <li>Replace the Switch Arm [82].</li> <li>Replace the Motor [6].</li> </ul>

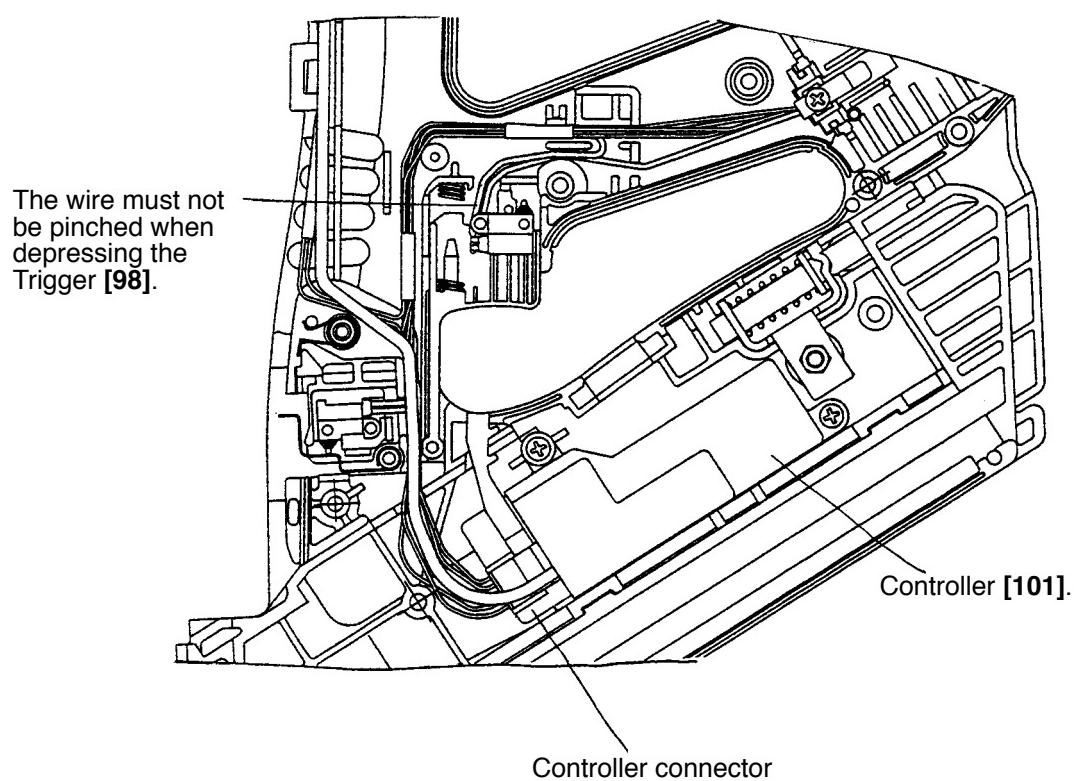


Fig. 16

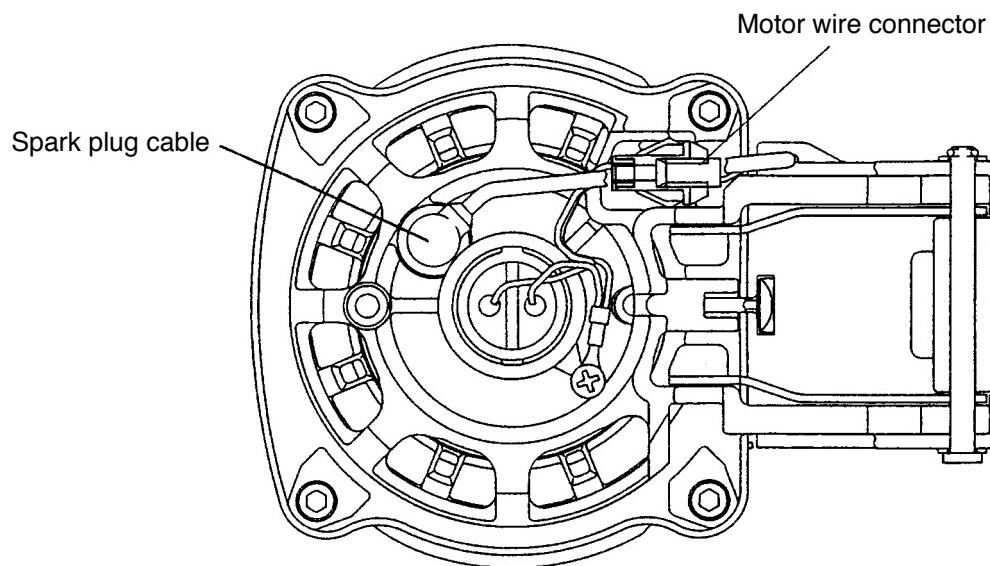
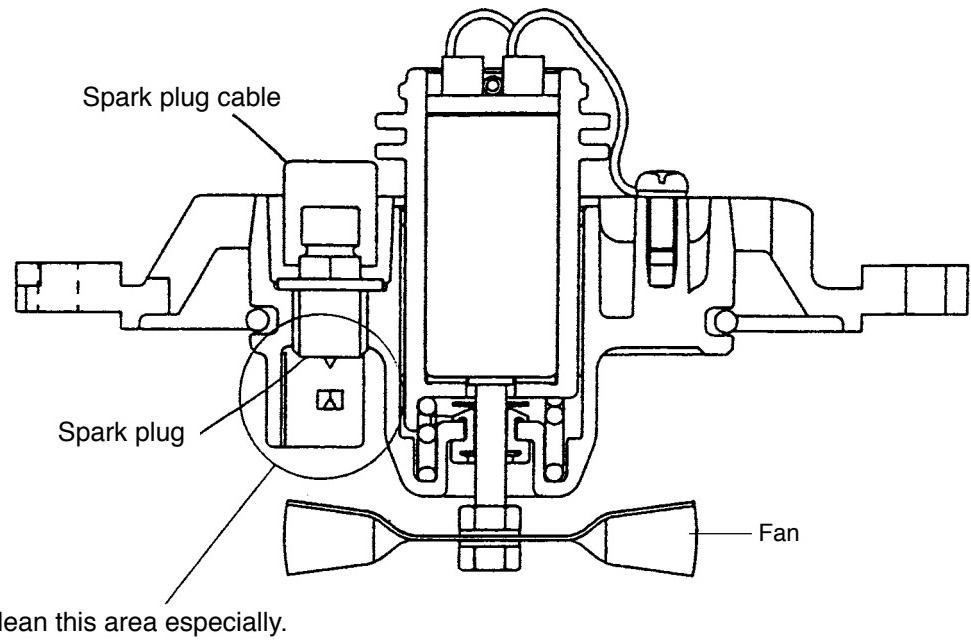


Fig. 17

Continued

Problem	Possible cause	Inspection method	Remedy
No combustion occurs.	<Electric section> Continued • No spark occurs. (Check for sparking according to "9-3. Checking for Sparking and Corrective Action".)	<ul style="list-style-type: none"> <li>The Battery [111] is not set properly.</li> <li>The Battery [111] is faulty.</li> <li>The battery indicator light lights red.</li> <li>Connection failure between Internal Wire (A) [86] and the Controller [101].</li> <li>The spark plug cable is disconnected from spark plug (A).</li> <li>Faulty insulation of the spark plug cable wire.</li> <li>Break in Internal Wire (A) [86].</li> <li>The spark switch is faulty.</li> <li>Spark Plug (A) [11] is stained.</li> <li>The wire near the Trigger [98] is pinched.</li> <li>Switch Lever (B) [114] is deformed.</li> </ul>	<ul style="list-style-type: none"> <li>Set the Battery [111] properly.</li> <li>Replace the Battery [111].</li> <li>Charge the Battery [111].</li> <li>Connect properly (Fig. 16).</li> <li>Connect properly (Fig. 17).</li> <li>Replace the Controller [101].</li> <li>Replace Internal Wire (A) [86].</li> <li>Replace Internal Wire (A) [86].</li> <li>Clean spark plug (A) (Fig. 18).</li> <li>Position the wire correctly (Fig. 16).</li> <li>Replace Switch Lever (B) [114].</li> </ul>
No nail is driven though nails are set properly and combustion is normal.	<Combustion section> • The Piston [39] does not return completely.	<ul style="list-style-type: none"> <li>Check the position of the Piston [39].</li> <li>The O-rings [15] [36] are worn.</li> <li>The Lead Valve [45] is deformed.</li> <li>Inside of the cylinder is stained.</li> <li>The Piston Ring [38] is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Return the Piston [39] to the uppermost position with a flat-blade screwdriver.</li> <li>Keep depressing the Trigger [98] securely until the nailing operation is completed.</li> <li>Replace the O-rings [15] and [36].</li> <li>Replace the Lead Valve [45].</li> <li>Clean the inside of the cylinder.</li> <li>Replace the Piston Ring [38].</li> </ul>
Low output.	<ul style="list-style-type: none"> <li>Discharging and cooling are insufficient.</li> <li>The outside air temperature and the altitude are out of the specifications.</li> </ul>	<ul style="list-style-type: none"> <li>The Filter [4] is clogged.</li> <li>Check the outside air temperature and the altitude.</li> </ul>	<ul style="list-style-type: none"> <li>Clean the Filter [4] (Fig. 13).</li> <li>Outside air temperature range: 0°C to 40°C</li> <li>Altitude: Under 1500 m (5000 feet)</li> </ul>
The nailer is overheated.	<ul style="list-style-type: none"> <li>Discharging and cooling are insufficient.</li> <li>Operating speed is fast.</li> </ul>	<ul style="list-style-type: none"> <li>The Filter [4] is clogged.</li> </ul>	<ul style="list-style-type: none"> <li>Clean the Filter [4] (Fig. 13).</li> <li>Do not use the nailer at high speed.            Speed: 1 nail/sec.            Continuous operation:            1000 nails/h         </li> </ul>
Abnormal noise is heard when the fan is rotating. * A rubbing noise may be heard in some rare cases but there is no problem in operation.	<ul style="list-style-type: none"> <li>Discharging and cooling are insufficient.</li> </ul>	<ul style="list-style-type: none"> <li>Check that the Motor [6], Motor Mount [8], Motor Sleeve [9], Fan [20] and Nut M4 [18] are mounted properly.</li> </ul>	<ul style="list-style-type: none"> <li>Mount each part properly.</li> </ul>



**Fig. 18**

(2) Troubleshooting and correction in the case of general-purpose nailers

Problem	Possible cause	Inspection method	Remedy
1) Nails cannot be driven.	<p>&lt;Nails&gt;</p> <ul style="list-style-type: none"> <li>• Magazine is not loaded with specified genuine nails.</li> <li>• Magazine is loaded with abnormal nails (bent nails, large or small round-head nails, abnormal collation, etc.).</li> <li>• Nail or collating band clogs.</li> <li>• Collating band is deformed or torn.</li> </ul>	<ul style="list-style-type: none"> <li>• Check if the magazine is normally loaded with specified nails.</li> </ul>	<ul style="list-style-type: none"> <li>• Use specified nails.</li> <li>• Remove the abnormal nails and load the magazine with normal nails.</li> </ul>
	<p>&lt;Magazine&gt;</p> <ul style="list-style-type: none"> <li>• Magazine is abnormal (deformed or damaged).</li> <li>• Nail Feeder (A) [112] is abnormal (deformed or damaged).</li> <li>• Ribbon Spring [121] is abnormal (deformed or damaged).</li> <li>• Nail Rail [93] is abnormal (deformed, burrs, damaged or fatigued).</li> <li>• Adhesive fragments are on the nail rail or they need oil.</li> <li>• Foreign matter is found on the guide face of Nail Feeder (A) [112].</li> </ul>	<ul style="list-style-type: none"> <li>• Check if the nail feeder operates smoothly in the magazine.</li> <li>• Check if nails (one strip) move smoothly in the magazine.</li> </ul>	<ul style="list-style-type: none"> <li>• Repair or replace the defective part.</li> </ul>
	<p>&lt;Nose&gt;</p> <ul style="list-style-type: none"> <li>• Nail inlet groove of the nose is abnormal (deformed, burrs or damaged).</li> <li>• Adhesive fragments are in the nail inlet groove.</li> </ul>	<ul style="list-style-type: none"> <li>• Check if nails (one strip) are fed smoothly into the nail injection port of the nose.</li> </ul>	<ul style="list-style-type: none"> <li>• Repair or replace the defective part.</li> <li>• Remove the adhesive fragments.</li> </ul>

Problem	Possible cause	Inspection method	Remedy
	<p>&lt;Output section&gt;</p> <ul style="list-style-type: none"> <li>• Piston bumper is abnormal (dislocated, deformed or damaged).</li> <li>• O-ring [36] of the cylinder is abnormal (dislocated, deformed or damaged).</li> <li>• Driver blade is abnormal (deformed, burrs, damaged or fatigued).</li> </ul>	<ul style="list-style-type: none"> <li>• Pull the nail feeder backward and perform idle driving. Check if the driver blade has returned.</li> <li>• While operating the nailer without nails, check if the driving operation is performed.</li> <li>• After operating the nailer without nails, check if the driver blade is kept in the down position.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the piston bumper.</li> <li>• Reassemble or replace.</li> <li>• Repair or replace.</li> <li>• Replace the head valve spring.</li> </ul>
2) Nails are bent when being driven.	<ul style="list-style-type: none"> <li>• For short nails, the adjuster is raised too high.</li> <li>• Nails are not fully fed into the injection port.</li> <li>• Unspecified nails are used.</li> <li>• Driver blade is worn.</li> <li>• Workpiece is very hard.</li> <li>• Nail Feeder (A) [112] is abnormal (worn or damaged).</li> </ul>	<ul style="list-style-type: none"> <li>• Check if the adjuster is raised too high.</li> <li>• See item 1).</li> <li>• Check if the driver blade tip is abnormally worn.</li> <li>• Drive a nail into soft wood workpiece and check if the nail is bent.</li> <li>• Check Nail Feeder (A) [112] for abnormal condition.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn the adjuster to the lower position to decrease the pressure.</li> <li>• See item 1).</li> <li>• Replace the driver blade.</li> <li>• Do not use unspecified workpieces.</li> <li>• Replace Nail Feeder (A) [112].</li> </ul>

Problem	Possible cause	Inspection method	Remedy
3) Head of a nail driven into a workpiece protrudes from the wood surface.	<ul style="list-style-type: none"> <li>• Adjuster is improperly adjusted.</li> <li>• Workpiece is very hard.</li> <li>• Driver blade is worn.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn the adjuster to the lowest position and drive a nail.</li> <li>• Drive a nail into soft wood workpiece and check if the head protrudes from the wood surface.</li> <li>• Operate the nailer without nails and check if the driver blade is projected from the nose tip.</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust the adjuster to the proper position.</li> <li>• Do not use unspecified workpieces.</li> <li>• Replace the driver blade.</li> </ul>
4) Nails clog the mechanism.	<ul style="list-style-type: none"> <li>• Unspecified nails used. &lt;Improper nail feed&gt;</li> <li>• See &lt;Magazine&gt; in item 1).</li> <li>• Driver blade worn.</li> <li>• Nail Feeder (A) [112] is abnormal (worn or damaged).</li> </ul>	<ul style="list-style-type: none"> <li>• Check if the nails are specified ones.</li> <li>• Check if they move smoothly after putting nails, and check if the nail feeder operates smoothly.</li> <li>• Check if the driver blade tip is worn.</li> <li>• Check Nail Feeder (A) [112] for abnormal condition.</li> </ul>	<ul style="list-style-type: none"> <li>• Use specified nails.</li> <li>• See &lt;Magazine&gt; in item 1).</li> <li>• Replace the part.</li> <li>• Replace Nail Feeder (A) [112].</li> </ul>

### 9-3. Checking for Sparking and Corrective Action

The main causes of no combustion are the following five items.

- 1. The fuel cell is abnormal. ⇒ (Replace the fuel cell with new one.)
- 2. The battery is abnormal. ⇒ (Check the battery.)
- 3. The Chamber [24] is improperly sealed. ⇒ (Check the O-rings [15] and [36], and the moving amount of the Pushing Lever [64].)
- 4. The Piston [39] is not in the uppermost position. ⇒ (Check the position of the Piston [39].)
- 5. No sparking occurs.

It is most difficult to check the cause of the above "5. No sparking occurs". How to determine the cause of no sparking is explained below. (Disassemble the nailer according to "10. DISASSEMBLY AND REASSEMBLY".)

Remove the fuel cell then set nails and the battery.

- (1) Remove the Hex. Socket Hd. Bolt M5 x 14 [1] and open the Top Cover [3].
- (2) Remove the Hex. Socket Hd. Bolt M5 x 20 [13] and remove the Cylinder Head [14] from the Housing [71].
- (3) Put the Fan [20] on the Cylinder Head [14] and check that the Fan [20] does not contact the surrounding components.
- (4) Push up the Pushing Lever [64] to rotate the Motor [6].
- (5) Depress the Trigger [98].

⇒ If sparking does not occur from the spark plug (Fig. 19) as a result of the above operation, perform checking and take corrective actions as follows.

(Disassemble and reassemble the nailer according to "10. DISASSEMBLY AND REASSEMBLY".)

#### Checking and corrective action

1. Check for stain of Spark Plug (A) [11]. ⇒ Clean Spark Plug (A) [11].
2. Faulty insulation of the spark plug cable (sparking occurs from the spark plug cable). ⇒  
Disconnect the spark plug cable from Spark Plug (A) [11] and check the spark plug cable. If the spark plug cable is abnormal (discharged from the cable due to scratches), replace the Controller [101].
3. Faulty insulation of Spark Plug (A) [11]. ⇒ Replace Spark Plug (A) [11].
4. Check whether the trigger switch wire in the Trigger [98] is pinched or not (Fig. 16).
5. Switch Lever (B) [114] is faulty. ⇒ Replace Switch Lever (B) [114].
6. The Trigger [98] is faulty. ⇒ Replace the Trigger [98].
7. No sparking occurs even if the switch in the Trigger [98] is directly turned on. ⇒ Replace Internal Wire (A) [86].

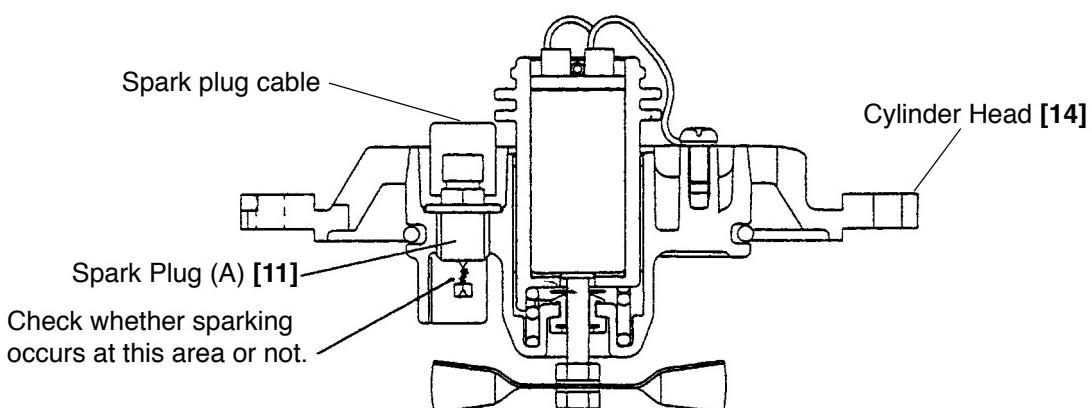


Fig. 19

#### 9-4. Regrinding the Driver Blade

The tip of the driver blade should be ground as shown in Fig. 20. To grind with a grinder, gradually grind the tip while cooling the ground area with water to prevent it from being excessively heated. Excessive grinding will rapidly reduce the service life of the driver blade. In such a case, replace the driver blade.

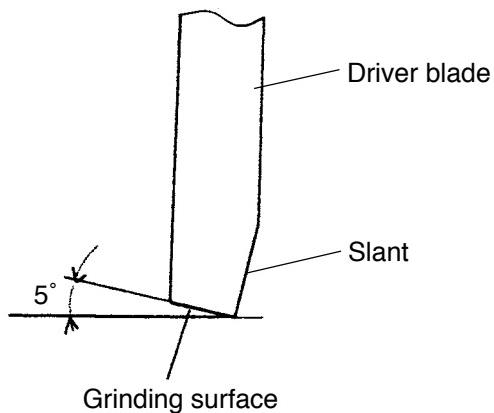


Fig. 20

## 10. DISASSEMBLY AND REASSEMBLY

The items particularly necessary for disassembly and reassembly are described below. The **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram.

### [CAUTION]

- **Before disassembly or reassembly, be sure to remove all nails, fuel cell and battery.**
- **Be sure to tighten the screw of the head securely before driving nails.**

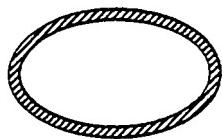
#### 10-1. General Precautions in Disassembly and Reassembly

- Apply grease (ATTOLUB No. 2) (Code No. 317918) to the areas shown in Fig. 22.
- Apply oil (Gas Nailer Lubricant) (Code No. 885246) (Code No. 885546) to the areas shown in Fig. 21.  
When installing the O-rings, be careful not to damage the O-rings and prevent dirt entry.
- Oil required: Hitachi Gas Nailer Lubricant  
8 oz. (250 cc) oil feeder (Code No. 885-246) (Code No. 885-546)
- Use the cleaner (Code No. 885245) for cleaning the inner parts such as O-rings.
- Tightening torque for each part

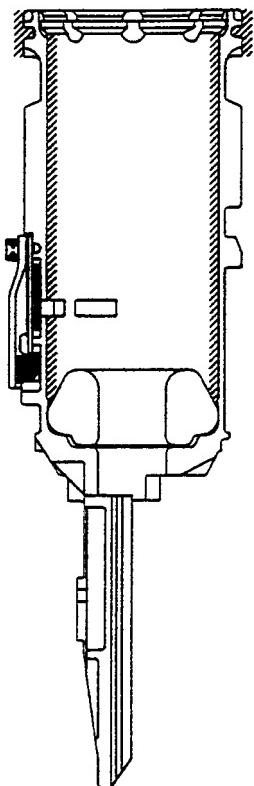
Bolt and others	Tightening torque N·m (kgf·cm, ft-lb)
Hex. Socket Set Screw M4 x 5 ..... [31]	3.4 ± 0.7 (35 ± 7, 2.5 ± 0.5)
Hex. Socket Hd. Bolt M4 x 10 ..... [61]	4.6 ± 0.5 (45 ± 5, 3.4 ± 0.4)
Hex. Socket Hd. Bolt M4 x 10 ..... [43]	
Hex. Socket Hd. Bolt M4 x 16 ..... [21]	
Hex. Socket Hd. Bolt M4 x 18 ..... [127]	1.0 to 1.5 (10 to 15, 0.7 to 1.1)
Hex. Socket Hd. Bolt M5 x 10 ..... [66]	6.4 ± 0.5 (65 ± 5, 4.7 ± 0.4)
Hex. Socket Hd. Bolt M5 x 14 ..... [1]	
Hex. Socket Hd. Bolt M5 x 15 ..... [76]	5.9 ± 0.5 (60 ± 5, 4.4 ± 0.4)
Hex. Socket Hd. Bolt M5 x 20 ..... [13]	6.4 ± 0.5 (65 ± 5, 4.7 ± 0.4)
Hex. Socket Hd. Bolt M5 x 50 ..... [51]	6.9 ± 0.5 (70 ± 5, 5.1 ± 0.4)
Seal Lock Hex. Socket Hd. Bolt M5 x 10 ..... [58]	8.3 ± 0.5 (85 ± 5, 6.1 ± 0.4)
Tapping Screw (W/Flange) D4 x 14 (Black) ..... [95]	1.5 ± 0.5 (15 ± 5, 0.7 ± 0.4)
Tapping Screw (W/Flange) D4 x 16 (Black) ..... [78]	3.0 ± 0.5 (30 ± 5, 2.2 ± 0.4)
Tapping Screw (W/Flange) D4 x 20 (Black) ..... [83]	
Tapping Screw (W/Flange) D5 x 20 (Black) ..... [126]	
Tapping Screw (W/Flange) D4 x 45 ..... [80]	
Flat Hd. Tapping Screw D4 ..... [104]	1.0 ± 0.3 (10 ± 3, 0.7 ± 0.2)
Machine Screw M4 x 6 ..... [28], [33], [46]	1.8 ± 0.4 (18 ± 4, 1.3 ± 0.3)
Nut M4 ..... [18]	1.0 ± 0.2 (10 ± 2, 0.7 ± 0.1)
Spark Plug (A) ..... [11]	

## Oil application areas

**O-ring (I.D. 66.27) [36]**  
Apply oil entirely.



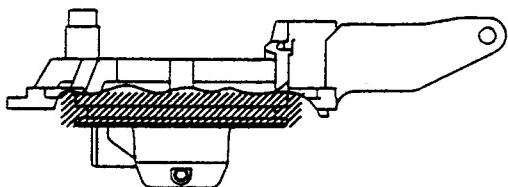
**Cylinder Ass'y [42]**  
Apply oil to the diagonally shaded areas.  
• Inside  
• Outside: O-ring groove



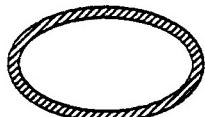
**Mount Sleeve [9]**  
Apply oil entirely.



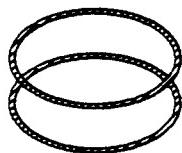
**Cylinder Head [14]**  
Apply oil to the diagonally shaded areas.  
• Outside: O-ring groove



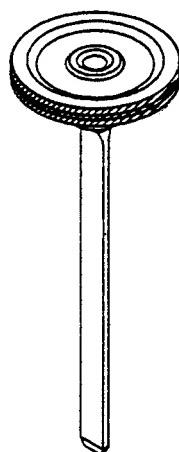
**O-ring (I.D. 59.92) [15]**  
Apply oil entirely.



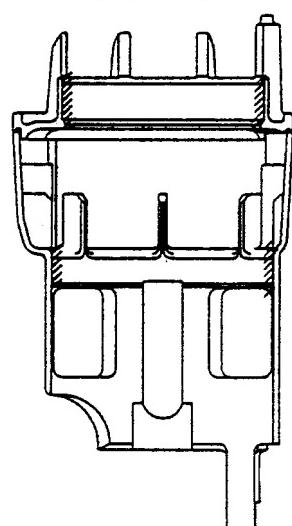
**Piston Ring [38]**  
Apply oil entirely.



**Piston [39]**  
Apply oil to the diagonally shaded areas.  
• Outside: Piston ring groove



**Chamber ass'y**  
Apply oil to the diagonally shaded areas.  
• Inside: O-ring sliding portions  
(2 places)

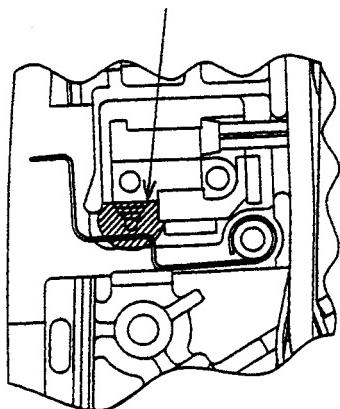


**Fig. 21**

Grease application areas

Handle (B) [84]

Plunger of the fan switch



Plunger of the trigger switch

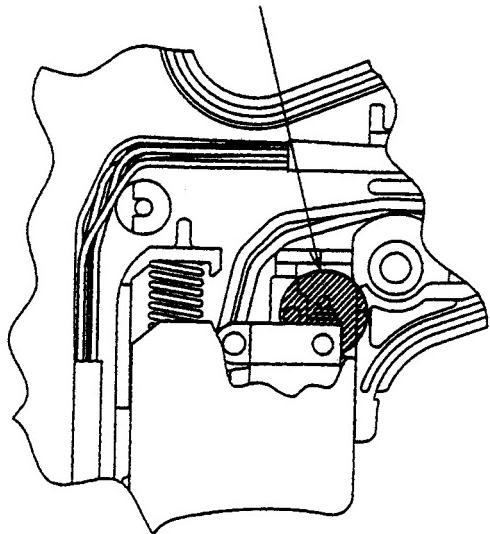


Fig. 22

## 10-2. Disconnection and Reconnection of Wiring between Cylinder Head Section and Handle Section

The Model NR 90GC is comprised of three sections, cylinder head section, housing section and handle section. The wiring between the cylinder head section and the handle section must be disconnected before disassembly and reassembly of each section. Refer to 10-3, 10-4 and 10-5 for disassembly and reassembly of each section.

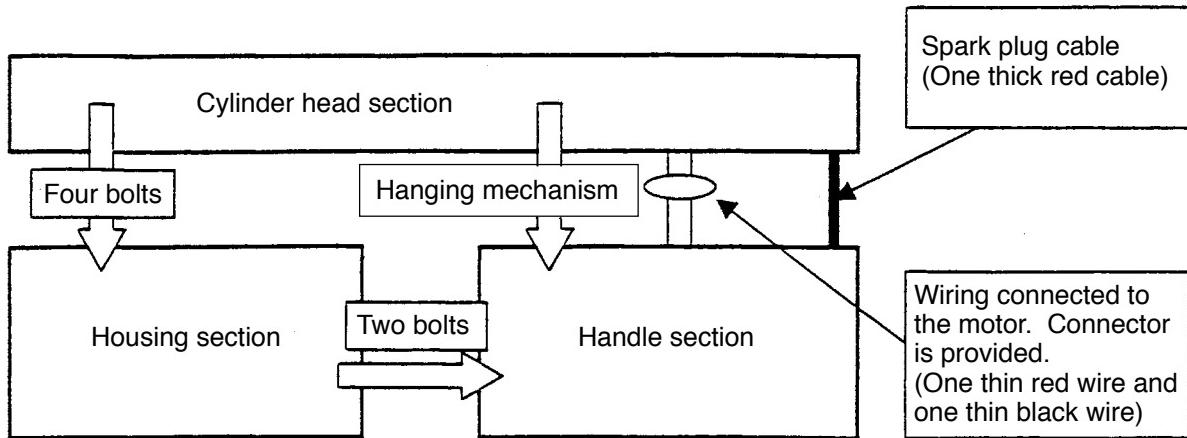


Fig. 23

### [Tools required]

- Hex. bar wrench (4 mm)
- Phillips screwdriver

### (a) Disassembly (Fig. 24)

- Remove the Hex. Socket Hd. Bolt M5 x 14 [1] and the Washer M5 [2] then open the Top Cover [3]. (Do not open the Top Cover [3] excessively. Otherwise, it may be broken.)
- Disconnect the red cable from Spark Plug (A) [11]. Be sure to hold the black rubber cap at disconnection to prevent the cable from being damaged. Do not yank the cable. If it is difficult to disconnect the rubber cap from Spark Plug (A) [11], pry the rubber cap off with a Phillips screwdriver or the like by fitting the tip of the Phillips screwdriver in the root of the cable outlet of the rubber cap.
- Remove the connector from the two wires coming from the Motor [6].
- Remove the Hex. Socket Hd. Bolts M5 x 20 [13] and remove the cylinder head section from the main body.

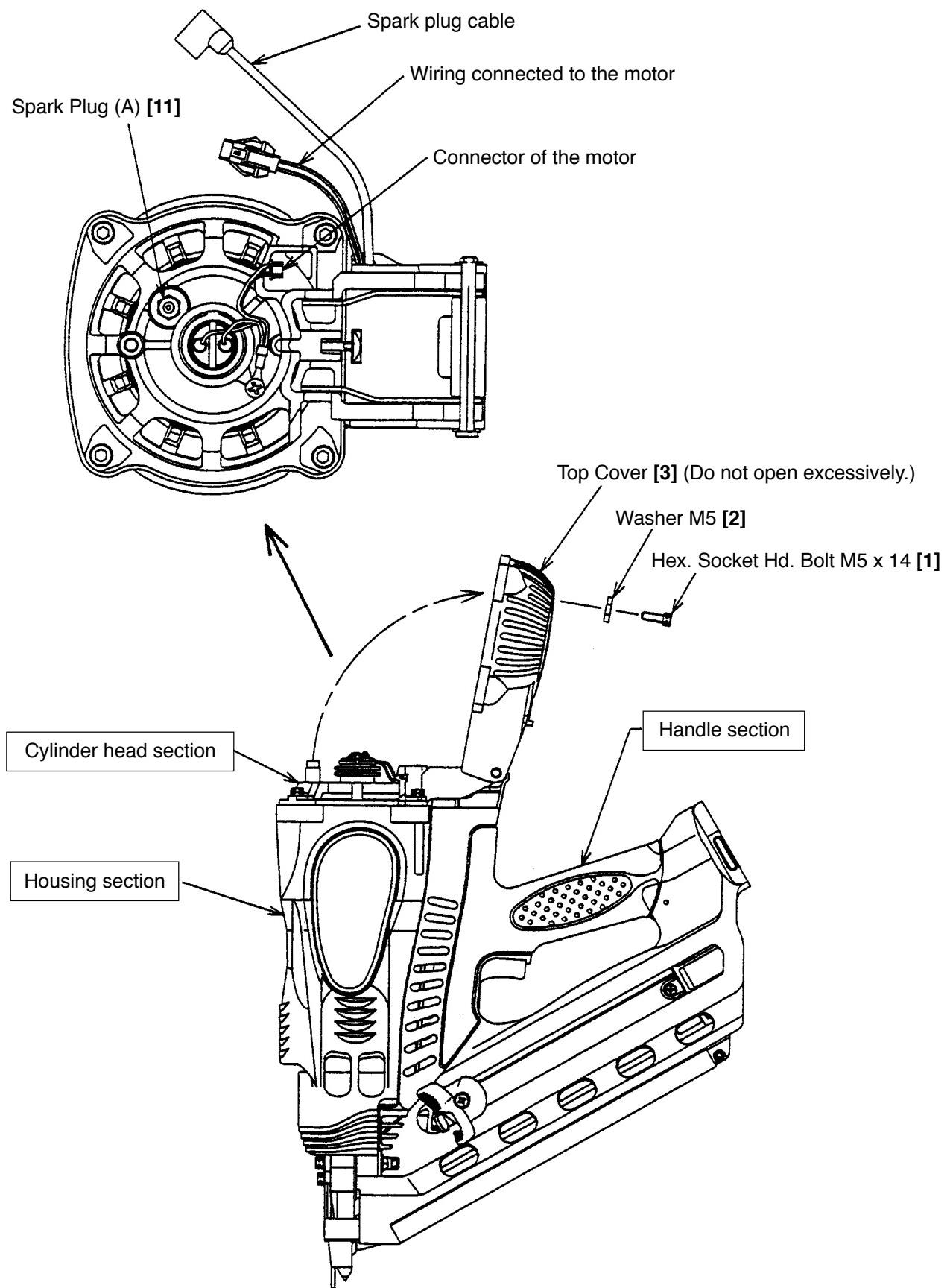


Fig. 24

(b) Reassembly

Reassembly procedures should be followed in the reverse order. Note the following points.

- When mounting the cylinder head section to the main body, align the core of the Cylinder Ass'y [42] with the core of the cylinder head section and tighten the Hex. Socket Hd. Bolts M5 x 20 [13] while pushing up the Pushing Lever [64] to prevent the O-ring [15] from being pinched.
- Perform wiring as shown in Fig. 25.

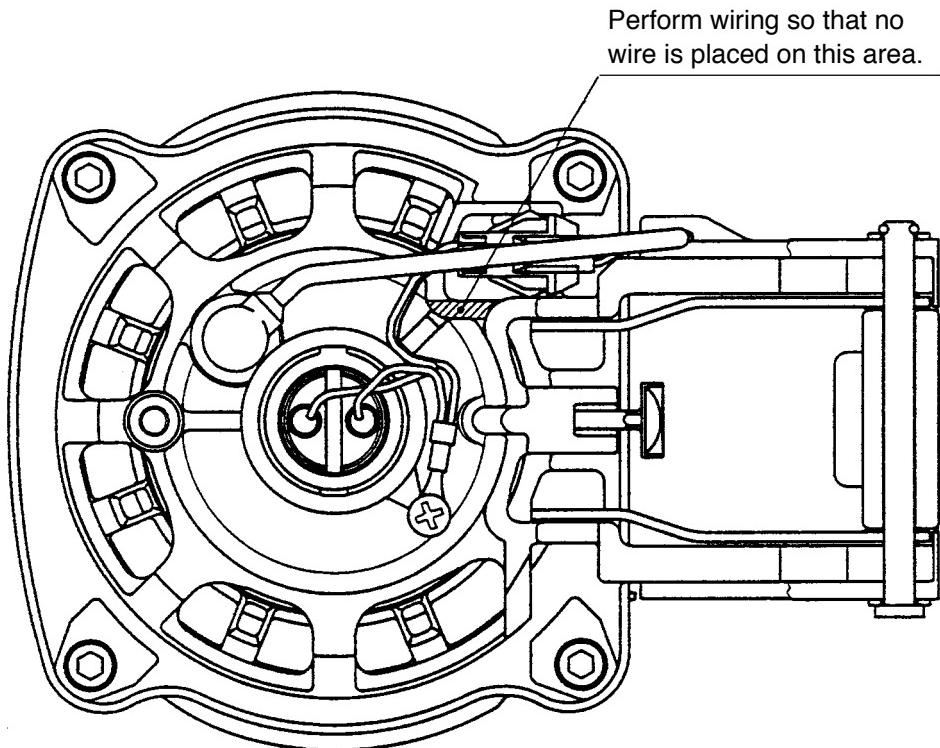


Fig. 25

### **10-3. Disassembly and Reassembly of Cylinder Head Section**

(1) Disassembly and reassembly of the Cylinder Head [14], Motor [6] and the related parts

[Tools required]

- Hex. bar wrench (3 mm)
- Phillips screwdriver
- Spanner (7 mm (0.276")) x 2 pcs.
- Roll pin puller (2.5 mm (0.098") dia.)
- Socket wrench (8 mm (0.314"))

(a) Disassembly (See Fig. 26.)

- Remove the O-ring [15].
- Remove the Nut M4 [18] and the Washer M4 [19] to remove the Fan [20].
- Remove the Hex. Socket Set Screw M4 x 5 [31] with a hex. bar wrench. Then remove the Machine Screw M4 x 6 [28] to remove the Motor Mount [8], Motor Sleeve [9], Shaft Washer [10] and Motor Spring [12].
- Remove the Roll Pin D2.5 x 25 [7] with a roll pin puller. Then remove the Motor [6] and the Rubber Washer [29].
- Remove Spark Plug (A) [11] with a socket wrench.

**CAUTION: Do not deform the Fan [20].**

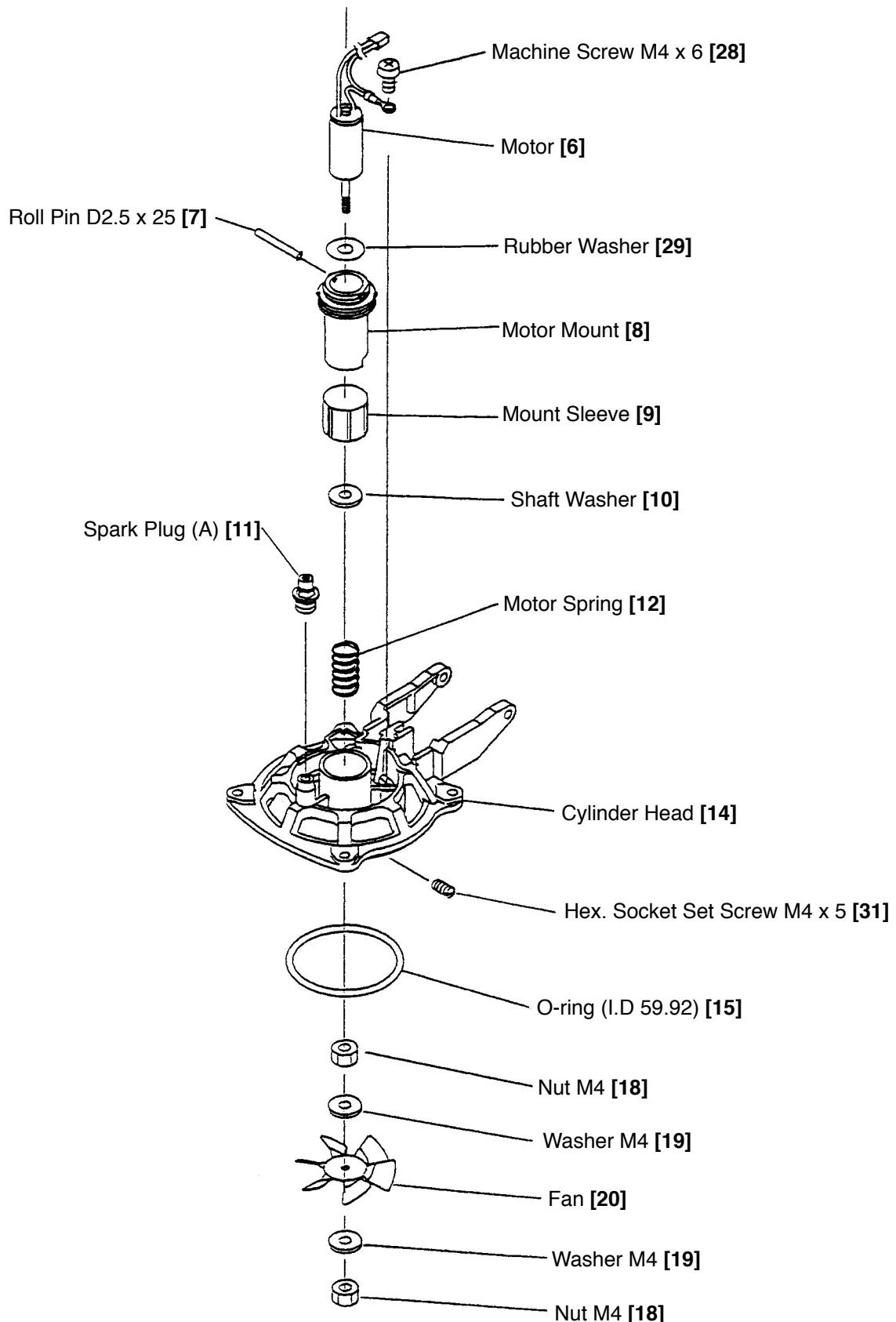


Fig. 26

### (b) Reassembly

Disassembly procedures should be followed in the reverse order. Note the following points.

- Apply designated oil (Code No. 885-546, Code No. 885-246) to the O-ring [15] and the Mount Sleeve [9].
- Mount the Mount Sleeve [9] with the uneven surface faced outward.
- Align the end of the Motor Spring [12] with the center of the Motor Mount [8] and rotate it as shown in Fig. 27.
- Set the Cylinder Head [14] and the Motor Mount [8] as shown in Fig. 28 and secure with the Hex. Socket Set Screw M4 x 5 [31]. At this time, lightly press the Motor Mount [8] in "A" direction to prevent the Motor Mount [8] from floating.

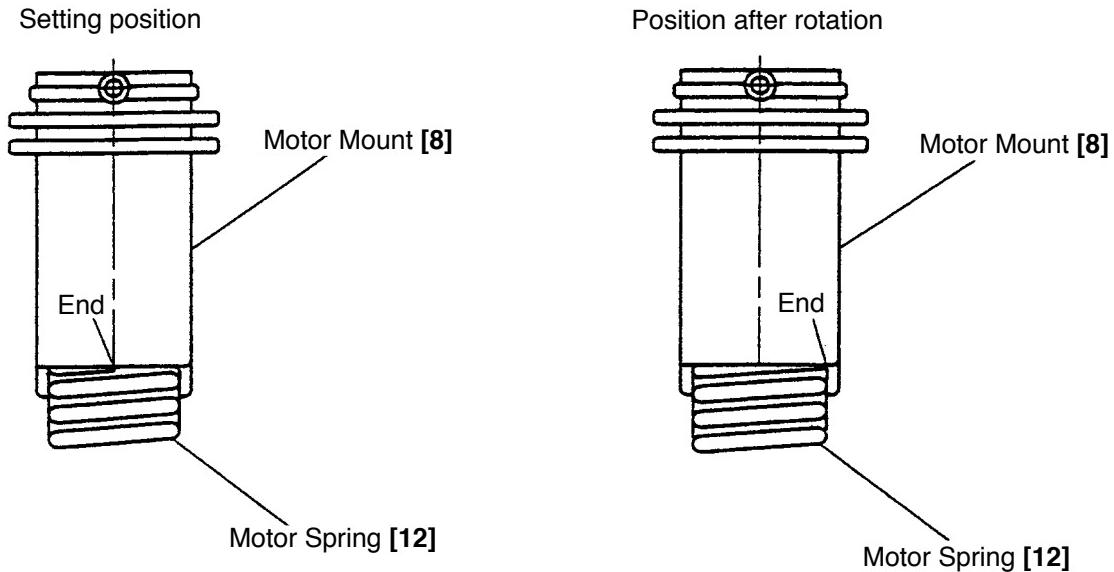


Fig. 27

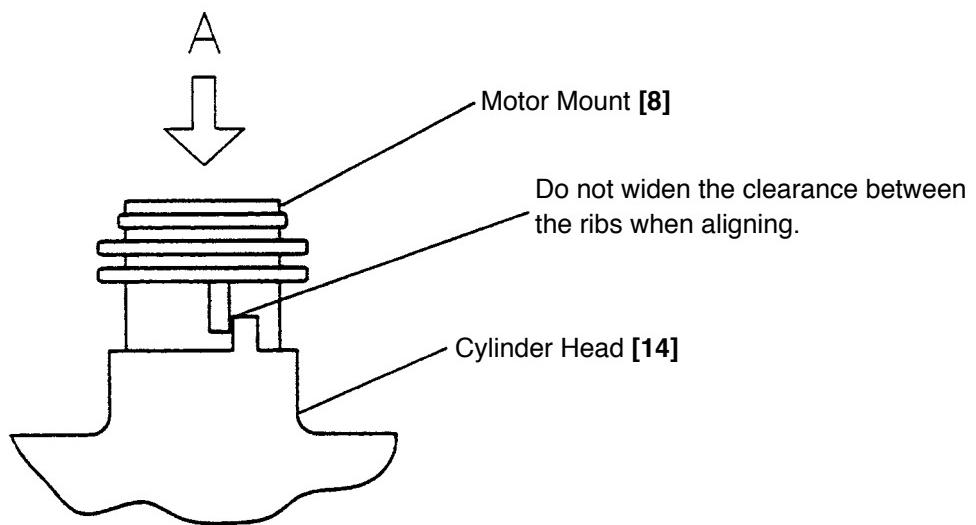


Fig. 28

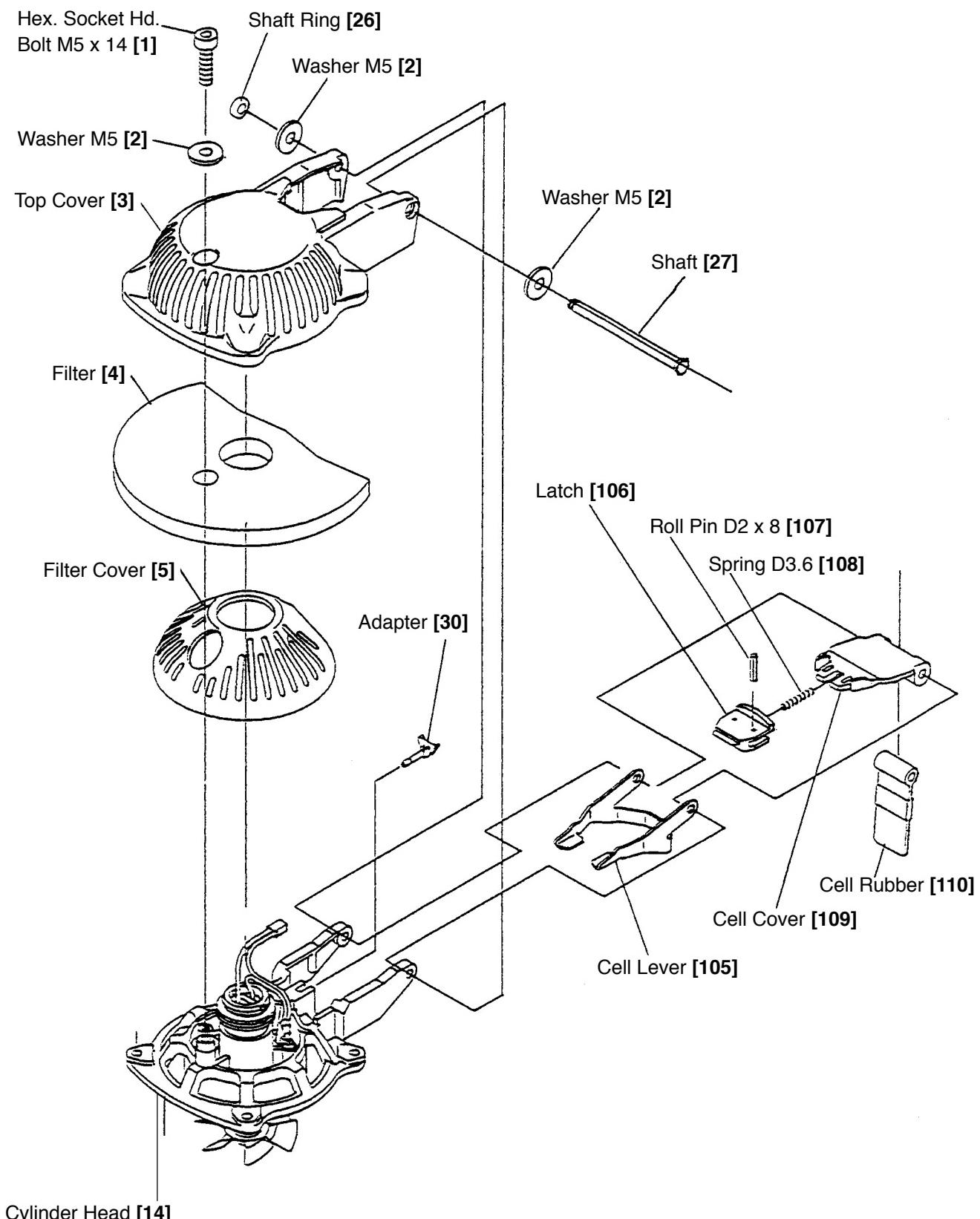
(2) Disassembly and reassembly of the Top Cover [3] and the related parts

[Tools required]

- Roll pin puller (2.0 mm (0.078") dia.)

(a) Disassembly (See Fig. 29.)

- Remove the Filter Cover [5] and the Filter [4].
- Remove the Shaft Ring [26]. Then remove the Shaft [27], Washer M5 [2], Cell Lever [105], Cell Rubber [110] and Cell Cover [109].
- Remove the Roll Pin D2 x 8 [107]. Then remove the Latch [106] and the Spring D3.6 [108].
- Remove the Adapter [30].



**Fig. 29**

(b) Reassembly

Disassembly procedures should be followed in the reverse order. Note the following points.

- Push the Adapter [30] in until it contacts the Cylinder Head [14].

#### 10-4. Disassembly and Reassembly of Housing Section

(1) Disassembly and reassembly of housing section, handle section and pushing lever (Fig. 30)

[Tools required]

- Hex. bar wrench (4 mm)

(a) Disassembly

- Remove the cylinder head section from the main body according to 10-2 and 10-3.

Remove the Hex. Socket Hd. Bolt M5 x 50 [51] and pull out the Nose Sleeve [52]. Then the output section and the Plate Sleeve [54] can be removed from the main body. Remove the Hex. Socket Hd. Bolt M5 x 10 [66]. Then the Pushing Lever [64], Pushing Stopper [65], Adjuster Bush (S) [67], Blade Guide [53] and U-Nut M5 [56] can be removed.

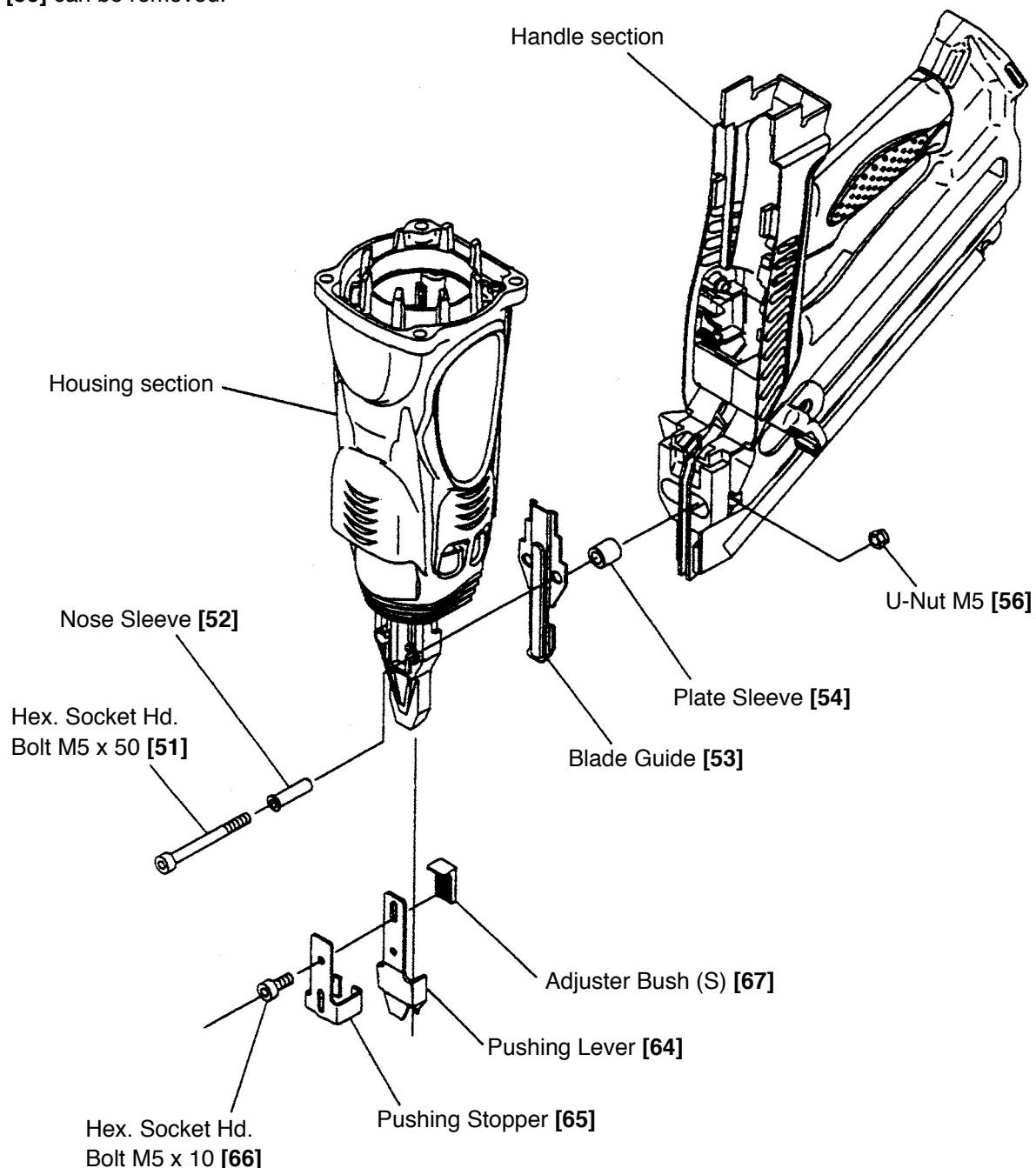


Fig. 30

(b) Reassembly

Reassembly procedures should be followed in the reverse order. Note the following points.

- Mount the Plate Sleeve [54] facing the stepped portion to the handle so that the stepped portion fits in the concave portion of the Side Plate [55] (Fig. 31).
- Check that each lever protruded from the handle section fits in each hole on the side of the handle of the housing section (Fig. 32).
- Align the Pushing Lever [64] with Adjuster Bush (S) [67] fitting the convex portions in the concave portions before tightening the Hex. Socket Hd. Bolt M5 x 10 [66].
- If the U-Nut M5 [56] turns together when tightening the Hex. Socket Hd. Bolt M5 x 20 [13], insert a small flat-blade screwdriver between the handle and the U-Nut M5 [56] to stop turning of the U-Nut M5 [56].

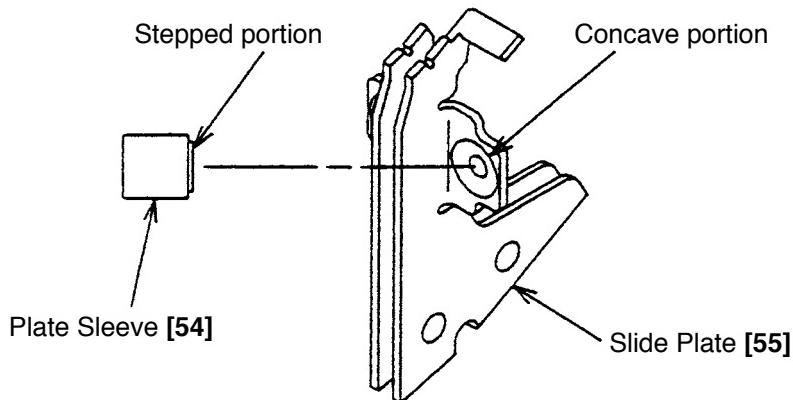


Fig. 31

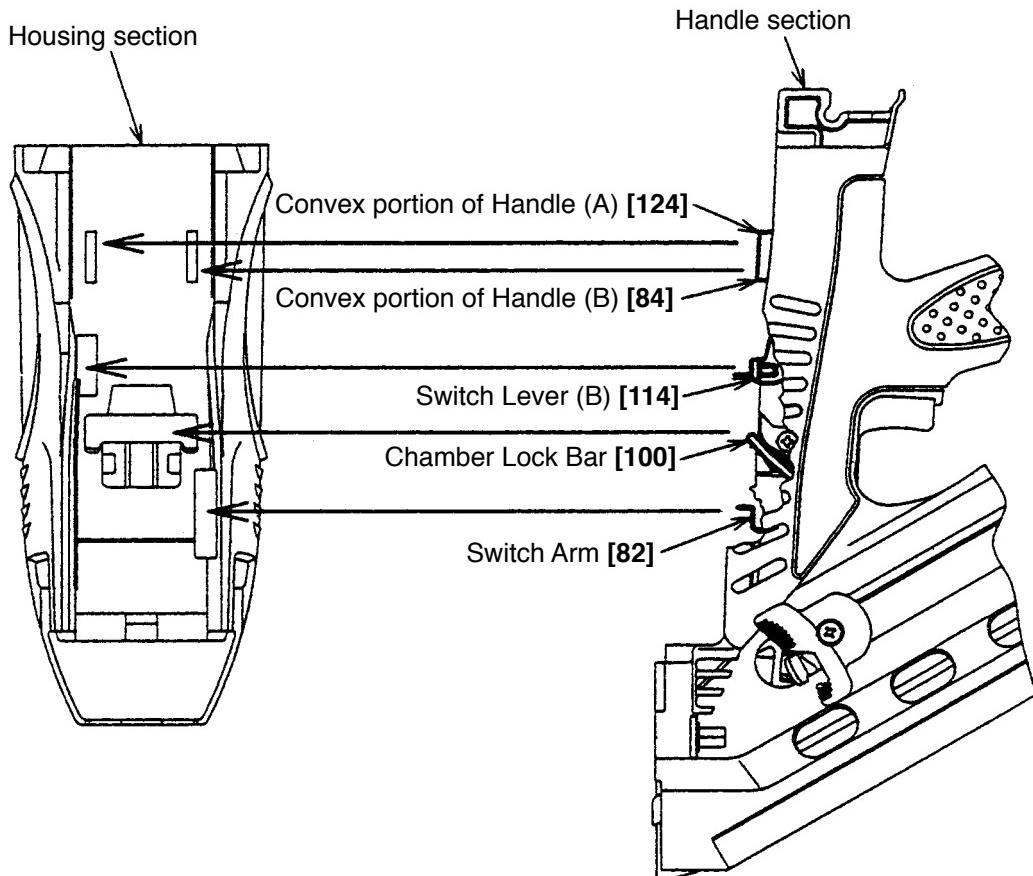


Fig. 32

(2) Disassembly and reassembly of the housing section (Fig. 33)

[Tools required]

- Hex. bar wrench (3 mm (0.118"), 4 mm (0.157"))
- Spaner (7 mm (0.276") or slender hd. pliers
- Roll pin puller (3 mm (0.118"))
- Phillips screwdriver
- Retaining ring puller for C-type hole
- Small flat-blade screwdriver

(a) Disassembly

- Remove the Seal Lock Hex. Socket Hd. Bolt M5 x 10 [58] to remove the Cylinder plate [57].
- Remove the Machine Screw M4 x 6 [33] to remove the Switch Plate [34]. Note that the Cylinder Ass'y [42] cannot be removed from the Housing Ass'y [74] without removing the Switch Plate [34].
- Push the tip of the Cylinder Ass'y [42] in the Housing Ass'y [74]. Then the Cylinder Ass'y [42], chamber section, Pushing Lever Arms (A) [60] and (B) [62] can be removed from the Housing Ass'y [74] in a single unit. It is easy to remove them while pressing the side of the Housing Ass'y [74] with a hand (Fig. 34).
- Remove the two Pushing Lever Springs [63] with a hand.
- Remove the two Roll Pins D3 x 32 [25] with a roll pin puller to remove the chamber section from the Cylinder Ass'y [42].
- Secure the U-Nut M4 [59] with a spanner (7 mm (0.276")) or slender hd. pliers and loosen the Hex. Socket Hd. Bolt M4 x 10 [61]. Then Pushing Lever Arms (A) [60] and (B) [62] are separated from the Pushing Lever Connector [68] and they can be removed from the Cylinder Ass'y [42].
- Remove the O-ring (I.D. 66.27) [36] and two Chamber Stop Rubbers [41] with a hand.
- Remove the two Hex. Socket Hd. Bolts M4 x 10 [43]. Then the muffler section can be disassembled into Buffer Cover [44], Lead Valve [45] and Muffler [50].
- Note that a special sealant is used for the Cylinder Ass'y [42]. Select a liquid silicon sealant capable of resisting temperatures up to 300°C.

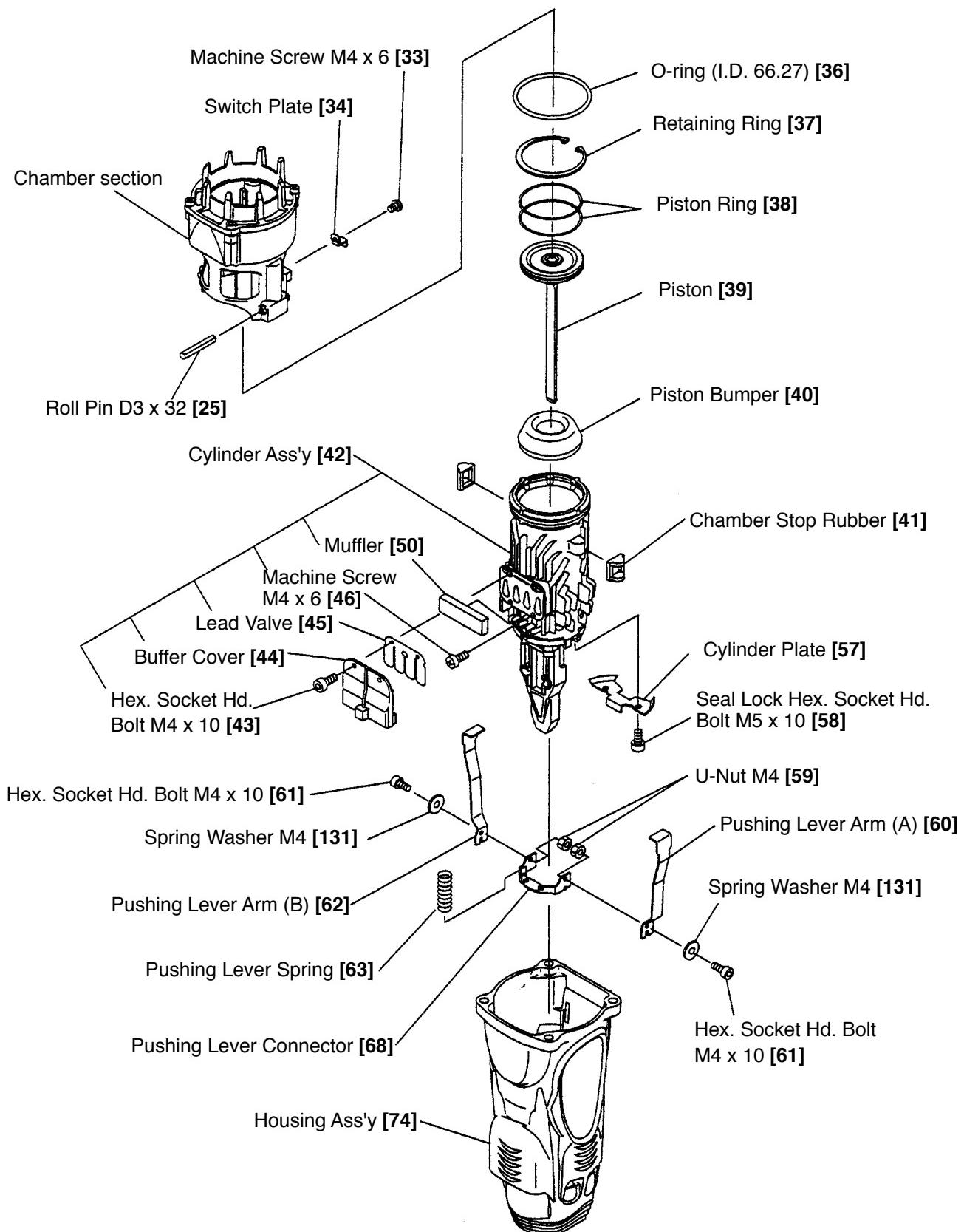
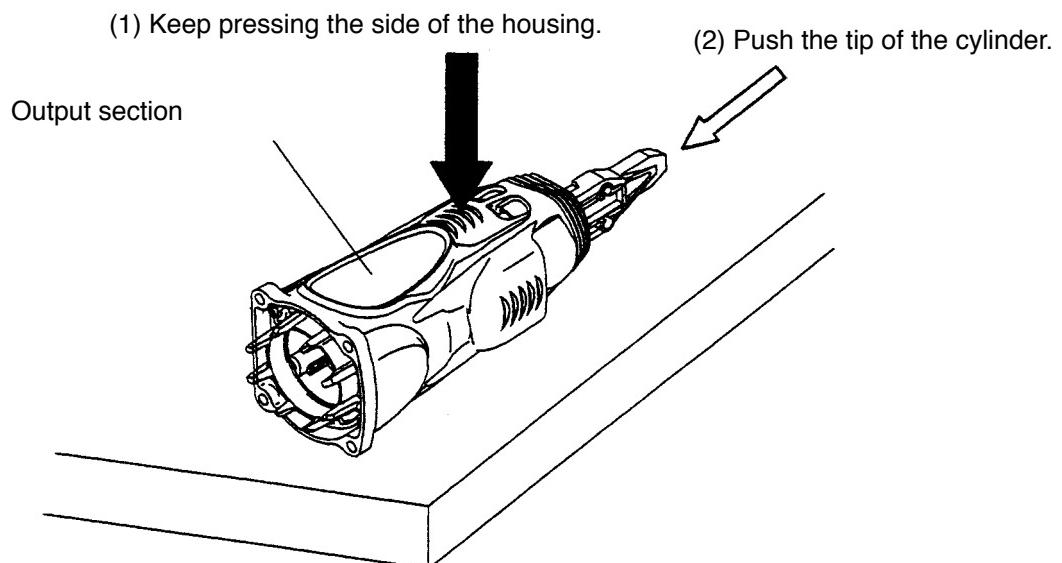
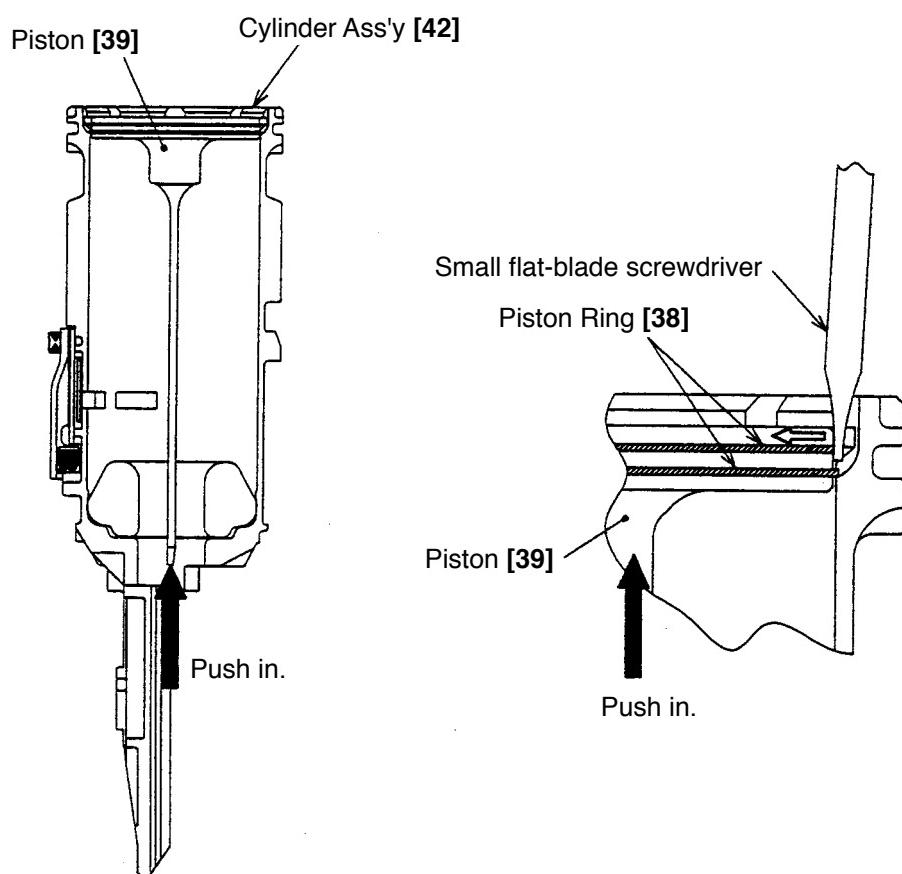


Fig. 33



**Fig. 34**



**Fig. 35**

- Remove the Retaining Ring [37] with the retaining ring puller for C-type hole. Insert a finger into the outlet of the Cylinder Ass'y [42] and push the tip of the Piston [39] straight up. Then the Piston [39] can be removed from the Cylinder Ass'y [42]. If the Piston Ring [38] fits in the retaining ring groove inside the cylinder, insert a small flat-blade screwdriver into the concave portion of the cylinder and fit the Piston Ring [38] in the piston ring groove of the Piston [39]. Then the Piston Ring [38] can be removed by pushing the Piston [39] up (Fig. 35).
- Remove the two Piston Rings [38] from the Piston [39] being careful not to deform them.
- Screw a bolt having 20 mm or more threaded portion (for example, Hex. Socket Hd. Bolt M5 x 20 [13]) in the hole beside the outlet of the cylinder or insert a roll pin puller in the hole and tap it lightly with a hammer to remove the Piston Bumper [40] (Fig. 36).

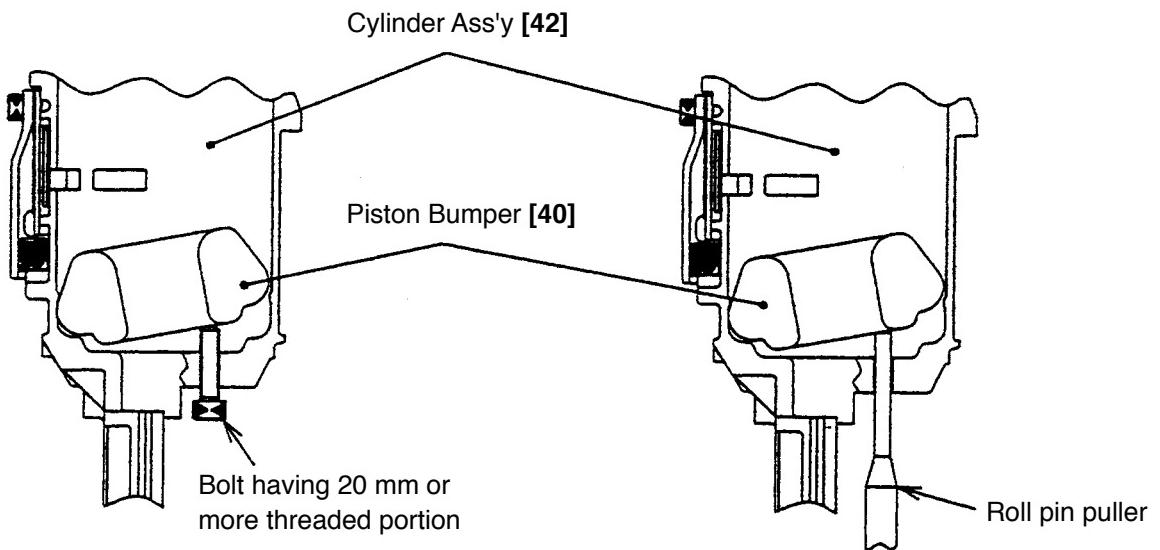


Fig. 36

## (2) Reassembly

Reassembly procedures should be followed in the reverse order. Note the following points.

- Drop the Piston Bumper [40] in the Cylinder Ass'y [42] facing its stepped side inward and push it in until it passes through the stopper portion by means of the handle of a hammer. You feel a click when the Piston Bumper [40] passes through the stopper portion (Fig. 37).
- Apply designated oil to the inside of the Cylinder Ass'y [42] and the O-ring groove on the outside of the Cylinder Ass'y [42] according to 10-1.
- Mount the two Piston Rings [38] to the Piston [39] being careful not to deform them.
- Be careful of the following when mounting the Piston [39] to the Cylinder Ass'y [42].
  - (1) Position each split of the two Piston Rings [38] at an angle of 90 degrees with respect to the exhaust port aligning these two splits in 180-degree opposite positions (Fig. 38).
  - (2) If the Piston Ring [38] fits in the retaining ring groove inside the cylinder, insert a small flat-blade screwdriver into the concave portion (7 places) at the end of the cylinder and lightly push the Piston [39] in fitting the Piston Ring [38] in the groove of the Piston [39]. Do not push the Piston [39] in forcedly. Otherwise, the Piston Ring [38] may be damaged (Fig. 39).
  - (3) Check that the tip of the driver blade is shown in the outlet. The Piston [39] cannot be mounted if the tip of the driver blade contacts the Piston Bumper [40] or the bottom of the cylinder.
  - (4) Face the chamfered side of the tip of the driver blade in the direction opposite to the exhaust port of the Cylinder Ass'y [42] (Fig. 39).

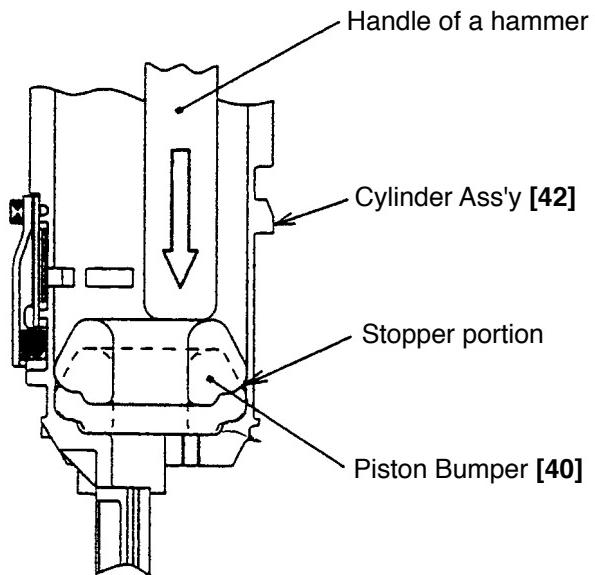


Fig. 37

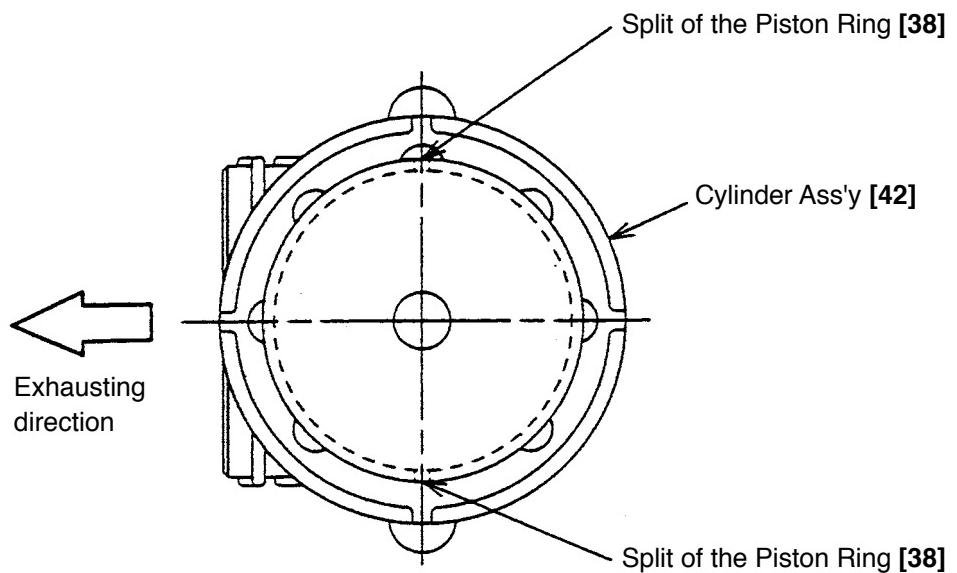


Fig. 38

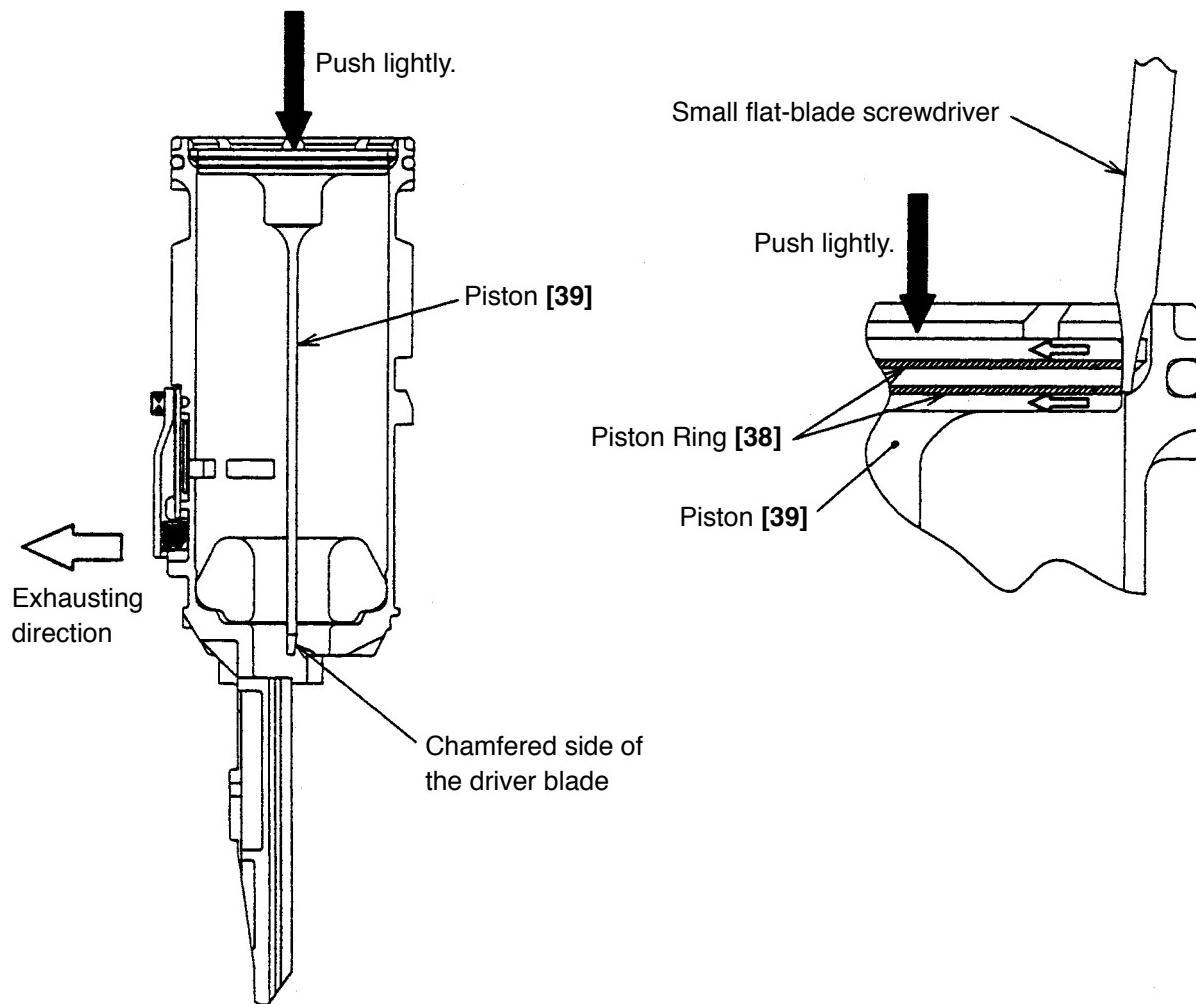
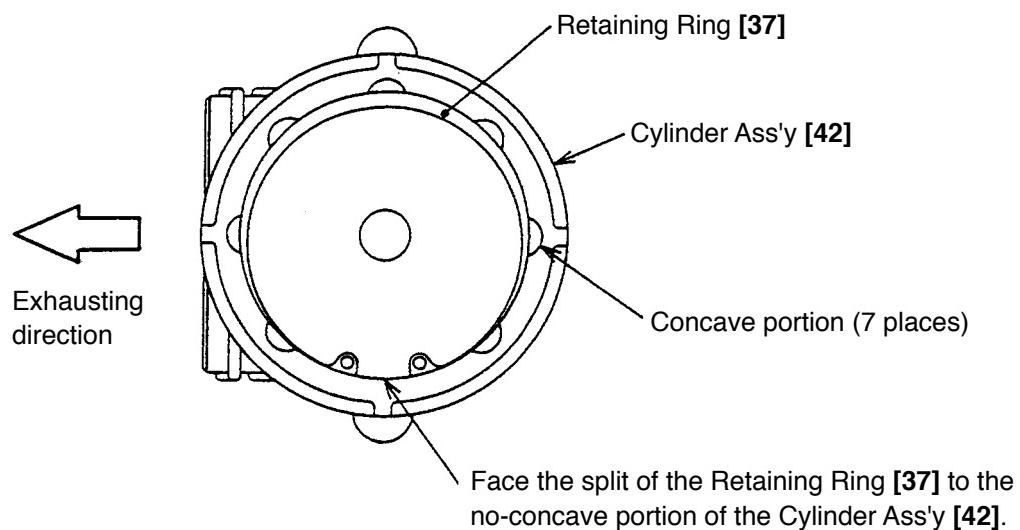
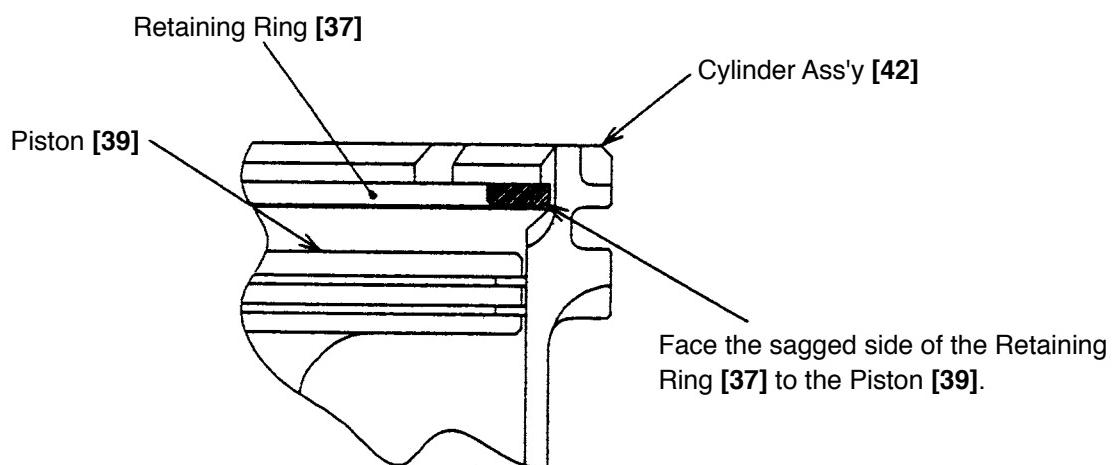


Fig. 39

- When mounting the Retaining Ring [37] to the Cylinder Ass'y [42], fit the Retaining Ring [37] in the groove securely facing the split to the no-concave portion of the cylinder. Face the sagged side of the Retaining Ring [37] to the Piston [39] (Figs. 40 and 41).



**Fig. 40**



**Fig. 41**

- Apply designated oil to the O-ring sliding surface in the Chamber [24] according to 10-1.
- Be careful of the mounting direction of Pushing Lever Arms (A) [60] and (B) [62] (Fig. 42). Align the notch of Pushing Lever Arm (A) [60] or (B) [62] with the convex portion of the Pushing Lever Connector [68]. Secure the U-Nut M4 [59] with a spanner (7 mm (0.276")) or slender hd. pliers and tighten the Hex. Socket Hd. Bolt M4 x 10 [61].

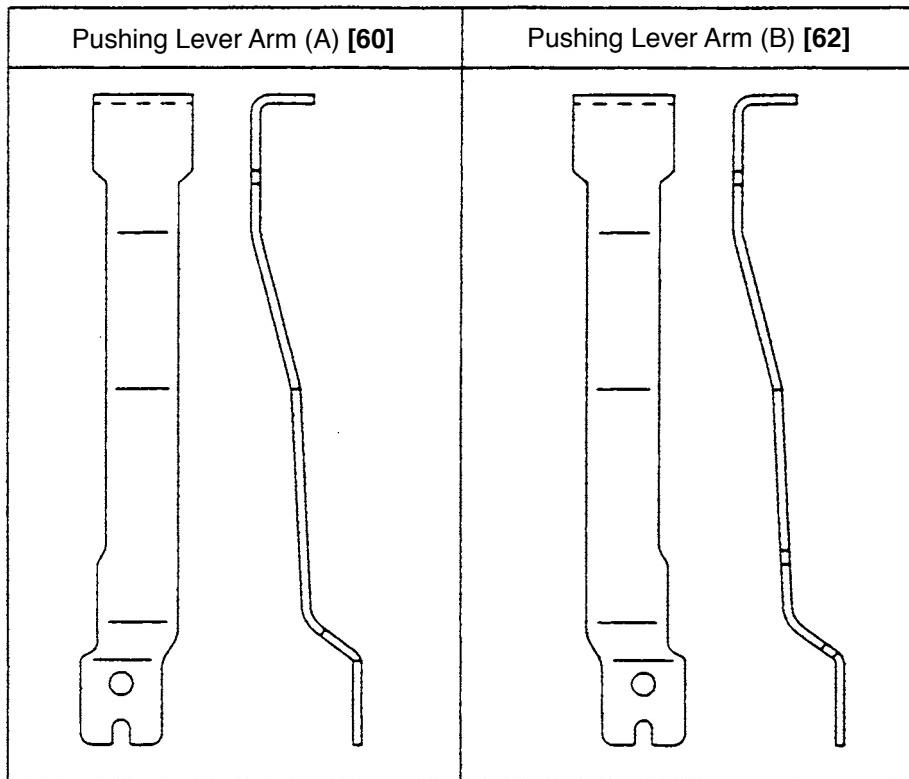
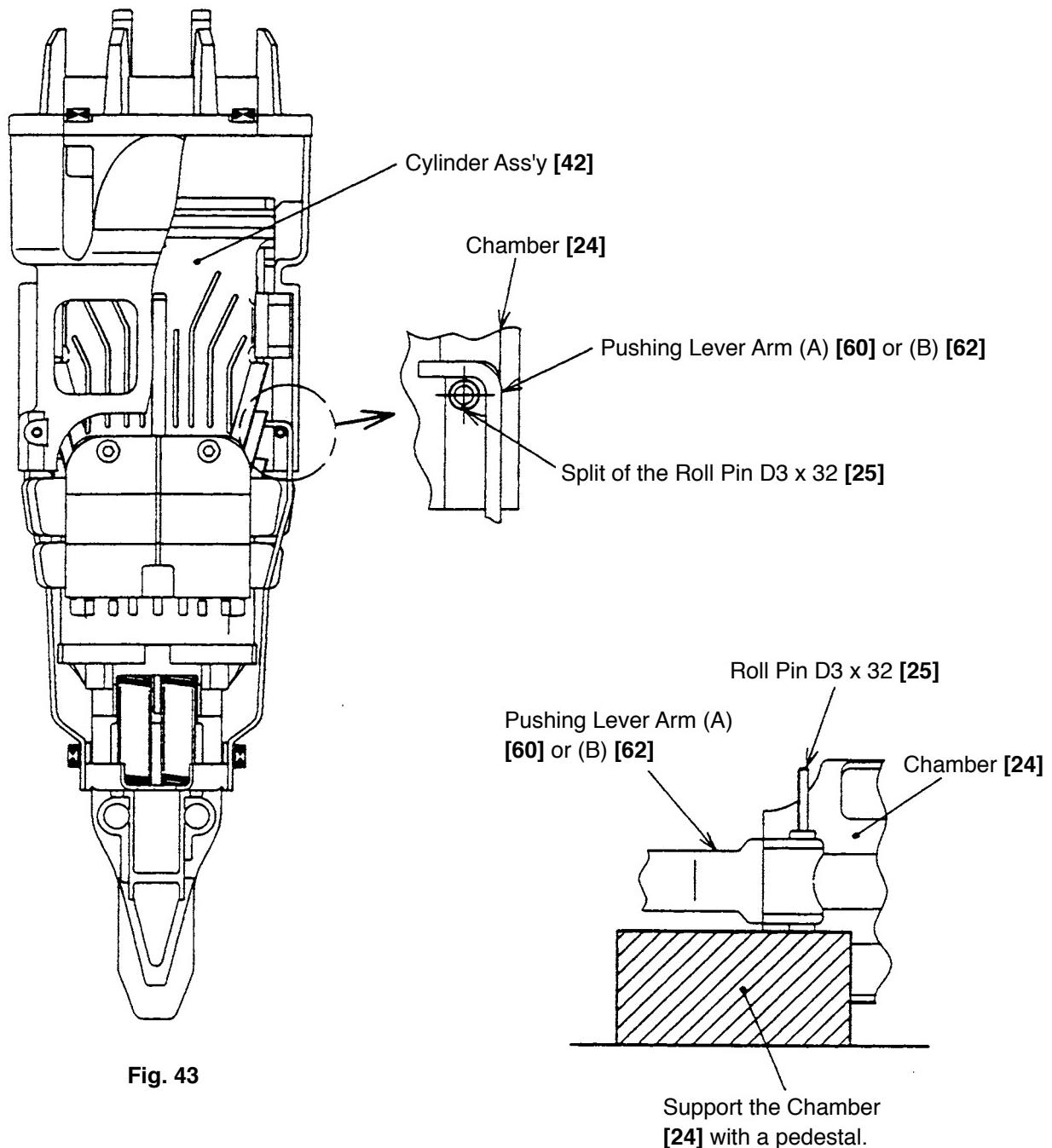


Fig. 42

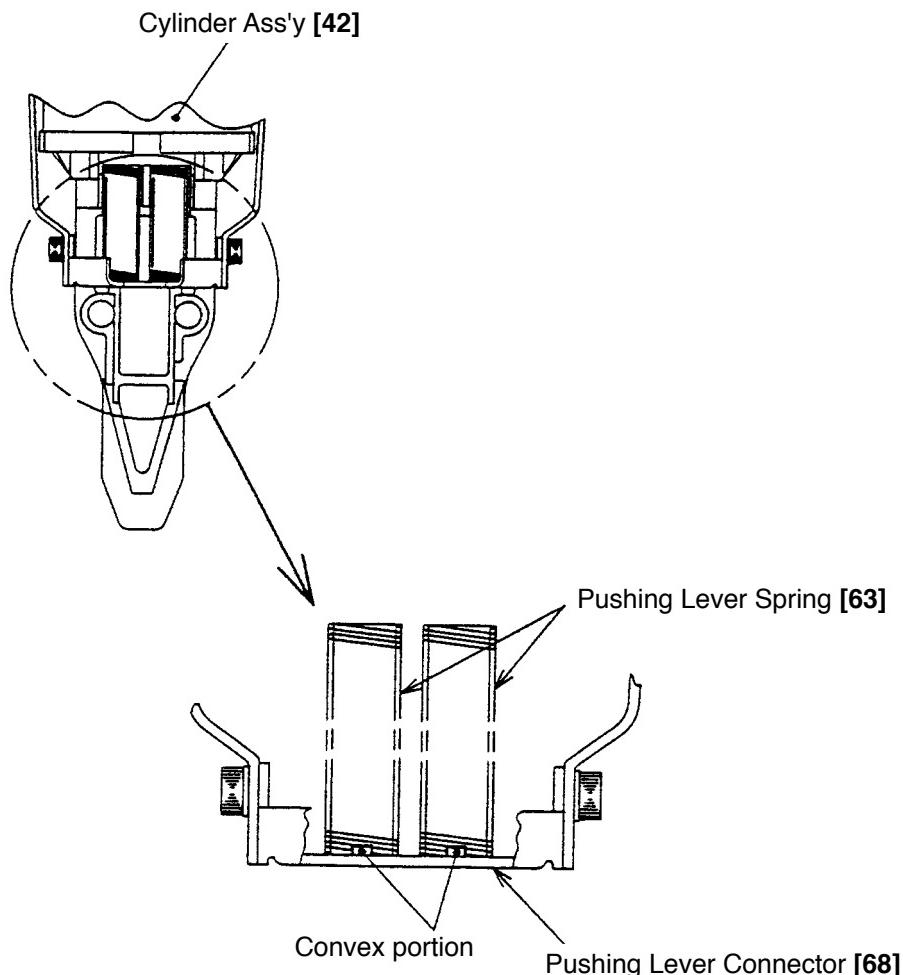
- Mount the Chamber Stop Rubber [41] and the chamber ass'y to the Cylinder Ass'y [42]. Align the roll pin hole of the Chamber [24] with the bent portion of Pushing Lever Arm (A) [60] or (B) [62] and drive the two Roll Pins D3 x 32 [25] with a roll pin puller (Fig. 43). Use a pedestal when driving the Roll Pins D3 x 32 [25] (Fig. 44). Do not support driving the Roll Pins D3 x 32 [25] on the buffer cover.



**Fig. 43**

**Fig. 44**

- Mount the Pushing Lever Spring [63] and insert the Cylinder Ass'y [42] into the Housing [71]. At this time, fit the convex portion of the Pushing Lever Connector [68] in the end of the Pushing Lever Spring [63] being careful not to remove the Pushing Lever Spring [63] (Fig. 45).



**Fig. 45**

- Secure the Cylinder Plate [57] to the Cylinder Ass'y [42] with the Seal Lock Hex. Socket Hd. Bolt M5 x 10 [58] and join the Cylinder Ass'y [42] with the Housing [71].

Make the Cylinder Plate [57] contact with the convex portion of the cylinder. Do not tighten the Seal Lock Hex. Socket Hd. Bolt M5 x 10 [58] with the Cylinder Plate [57] overlapped on the convex portion (Fig. 46). At this time, insert the Blade Guide [53] between the Cylinder Ass'y [42] and the Cylinder Plate [57].

\* Because it is difficult to mount the Blade Guide [53] later because the Cylinder Plate [57] pushes the Blade Guide [53].

\* Do not use any bolt other than the Seal Lock Hex. Socket Hd. Bolt M5 x 10 [58] because a special adhesive is used for the Seal Lock Hex. Socket Hd. Bolt M5 x 10 [58].

- Finally, secure the Switch Plate [34] to the Chamber [24] with the Machine Screw M4 x 6 [33].

\* After mounting the Cylinder Ass'y [42] to the Housing [71], mount the Switch Plate [34] to the Chamber [24].

Note that the Cylinder Ass'y [42] cannot be mounted to the Housing [71] if the Switch Plate [34] is mounted to the Chamber [24] first.

Section A – A

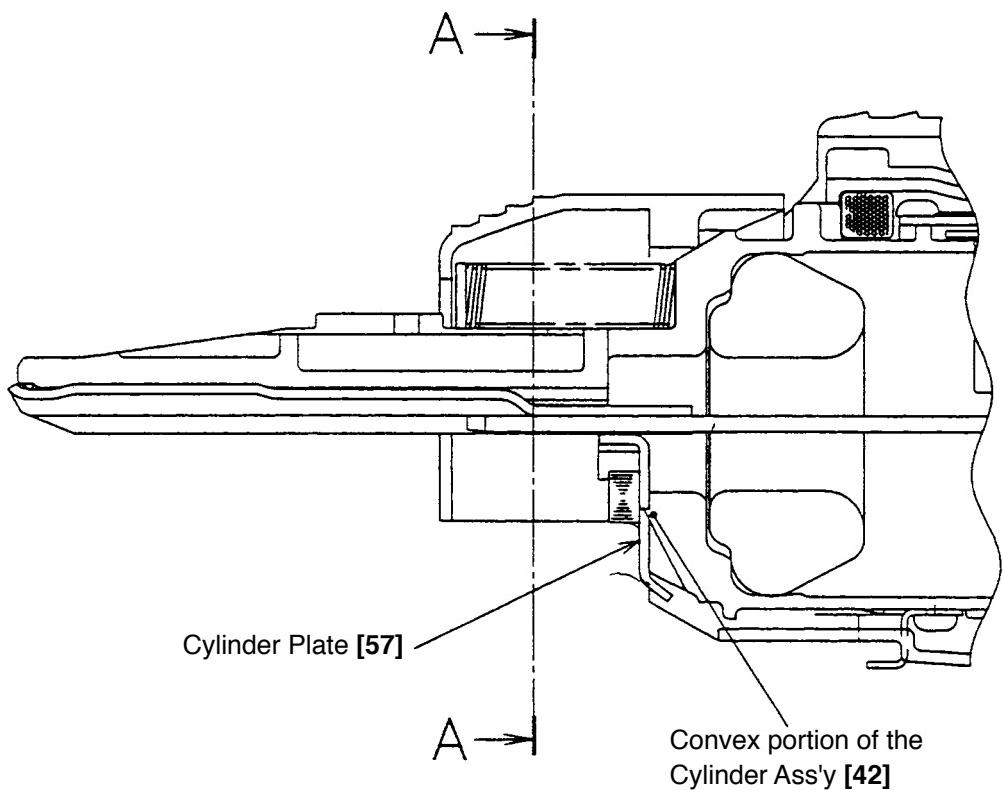
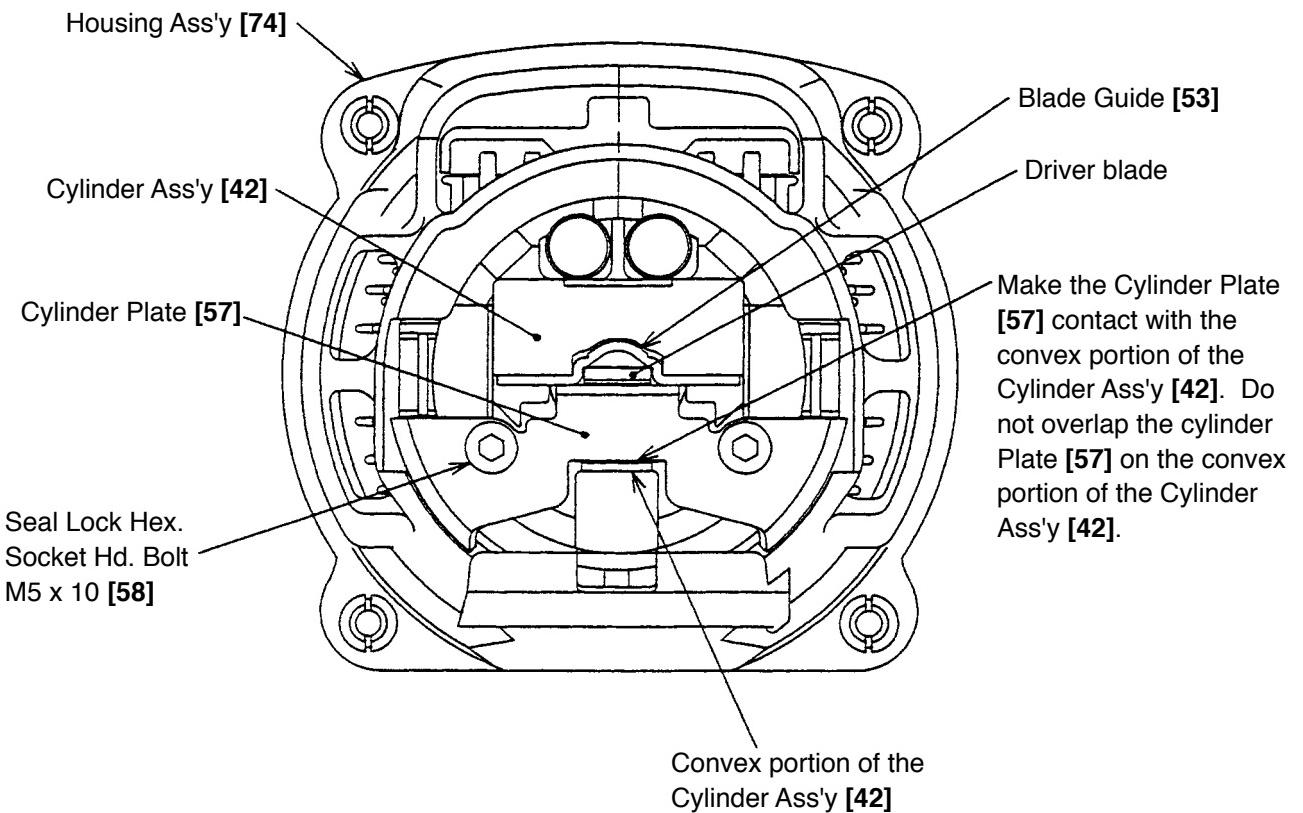


Fig. 46

(3) Disassembly and reassembly of Chamber [24] and the related parts (Fig. 47)

[Tools required]

- Hex. bar wrench (3 mm (0.118"))
- Phillips screwdriver

(a) Disassembly

- Remove the Hex. Socket Hd. Bolt M4 x 16 [21]. Then the Chamber Head [22], Gasket (A) [23] and Chamber [24] can be removed.
- Remove the Machine Screw M4 x 6 [33]. Then the Chamber Lock Plate [32] can be removed.

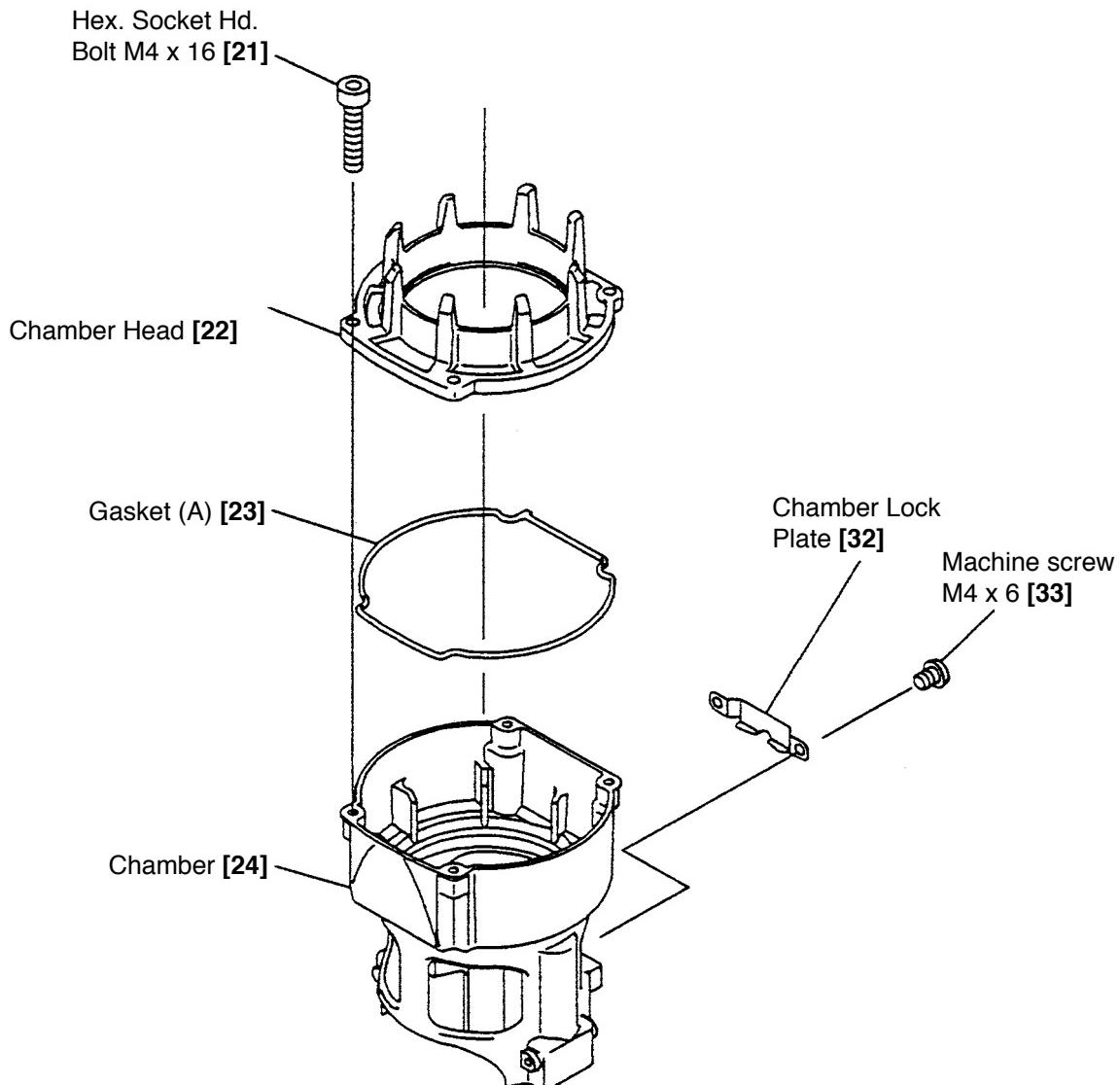


Fig. 47

(b) Reassembly

- Fit Gasket (A) [23] in the groove of the Chamber Head [22] and mount it to the Chamber [24]. Do not protrude Gasket (A) [23] from the groove. Be careful of the mounting direction of Gasket (A) [23] (Fig. 48).  
\* After mounting the Cylinder Ass'y [42] to the Housing [71], mount the Switch Plate [34] to the Chamber [24]. Note that the Cylinder Ass'y [42] cannot be mounted to the Housing [71] if the Switch Plate [34] is mounted to the Chamber [24] first.

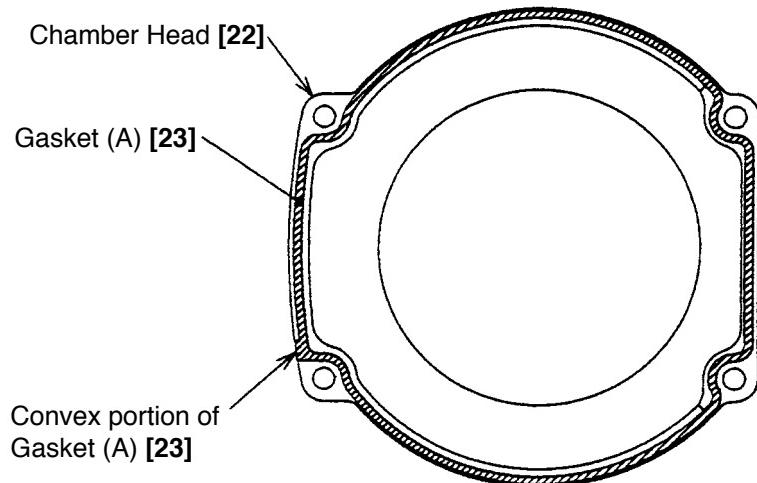


Fig. 48

(4) Disassembly and reassembly of Housing Ass'y [74] (Fig. 49)

Although the Housing Ass'y [74] is supplied in assembly, perform disassembly and reassembly of the Housing Ass'y [74] when replacing the components of the Housing Ass'y [74] singly.

[Tools required]

- Hand press

(a) Disassembly

- Push out the Screw M5 [70] in "A" direction as shown in Fig. 49 with a hand press.
- The insulator Sheet [72] cannot be replaced because it is adhered with double-side adhesive tape.

(b) Reassembly

- Push in the Screw M5 [70] in "B" direction as shown in Fig. 49 with a hand press.
- Degrease the adhering surface on the Housing [71] then adhere the Insulator Sheet [72] to the designated position (Fig. 49).

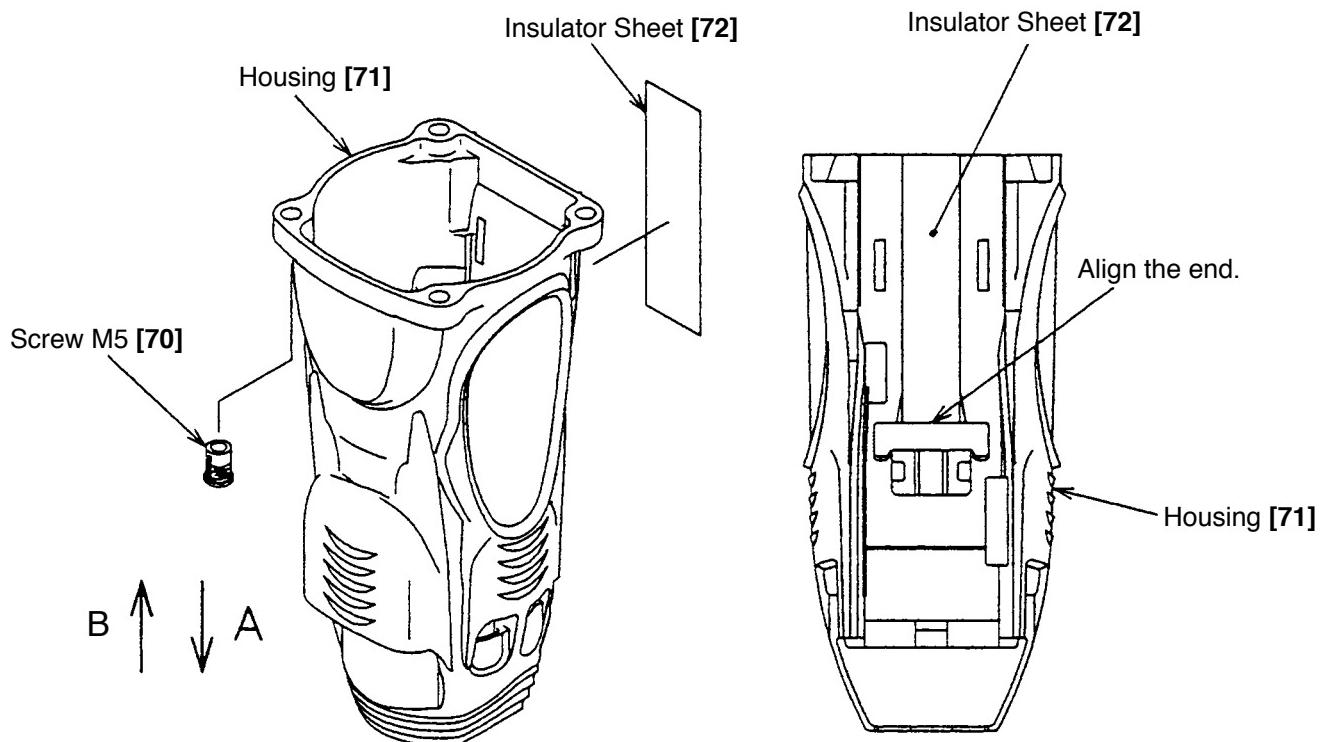


Fig. 49

## 10-5. Disassembly and Reassembly of Handle Section

(1) Disassembly and reassembly of handle (A) ass'y and handle (B) ass'y (Fig. 50)

The handle section is comprised of handle (A) ass'y and handle (B) ass'y.

[Tools required]

- Hex. bar wrench (3 mm)
- Phillips screwdriver

(a) Disassembly

- Perform disassembly according to 10-2, 10-3 and 10-4. Remove the cylinder head section and the housing section to isolate the handle section.
- Remove the Tapping Screw (W/Flange) D4 x 45 [80], Tapping Screw (W/Flange) D4 x 20 (Black) [83], Tapping Screw (W/Flange) D4 x 16 (Black) [78] and Hex. Socket Hd. Bolt M4 x 18 [127] then pull out the Magazine Guard [128].

Gently pull up handle (A) facing handle (B) (hooked side) downward. Then handle (A) ass'y is separated from handle (B) ass'y.

\* Be careful not to lose the following parts that are apt to drop.

- Trigger Spring [97]
- Trigger [98]
- Switch Lever (B) [114]
- Lever Stopper [116]
- Spring [129]

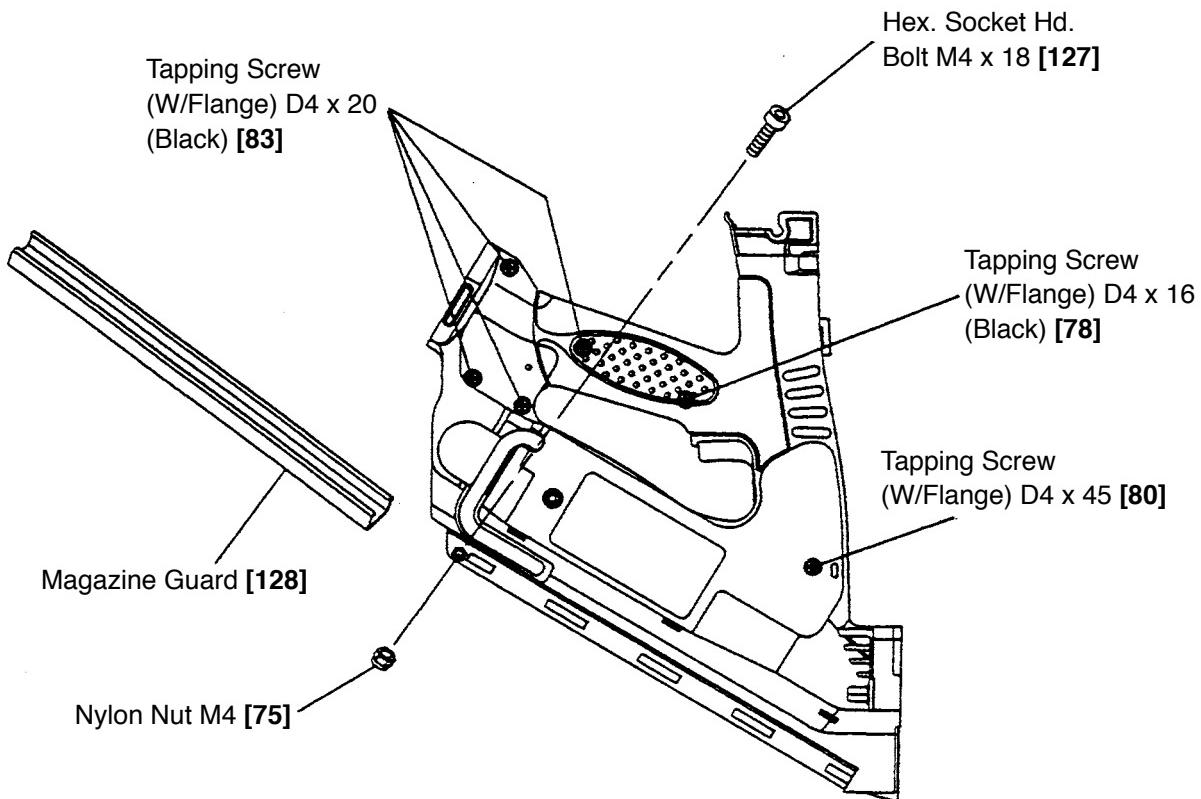
(b) Reassembly

- Reassemble handle (A) ass'y and handle (B) ass'y according to 10-5 (2), (3). Place handle (B) ass'y on a workbench and put handle (A) ass'y on handle (B) ass'y. Perform reassembly gently being careful not to drop the Lever Stopper [116].
- Insert the Magazine Guard [128] not to separate the handle section completely. Move Switch Lever (B) [114] to the designated position. Adjust the Spring [129] with a small flat-blade screwdriver so that the lower end of the Spring [129] is put on Switch Lever (B) [114].
- Tighten the six tapping screws (three kinds).

If the Tapping Screw (W/Flange) D4 x 20 (Black) [83] is tightened instead of the Tapping Screw (W/Flange) D4 x 16 (Black) [78], the screw boss of handle (A) may be damaged. Be careful of the screw length.

Tighten the screw aligning with the female thread portion of the handle at reassembly.

- Overtightening the Hex. Socket Hd. Bolt M4 x 18 [127] may deform the handle ass'y and cause hard nail loading. Do not apply tightening torque excessively. The tightening torque is acceptable if the bolt is seated.



Item No.	[80]	[83]	[78]	[127]
Description	Tapping Screw (W/Flange) D4 x 45	Tapping Screw (W/Flange) D4 x 20 (Black)	Tapping Screw (W/Flange) D4 x 16 (Black)	Hex. Socket Hd. Bolt M4 x 18
Dimensions				
Number of screws/bolts	1	4	1	1
Tightening torque N·m (kgf·cm) (ft-lb)		$30 \pm 0.5$ ( $30 \pm 3$ ) ( $2.2 \pm 0.4$ )		1.0 to 1.5 (10 to 15) (0.7 to 1.1)

Fig. 50

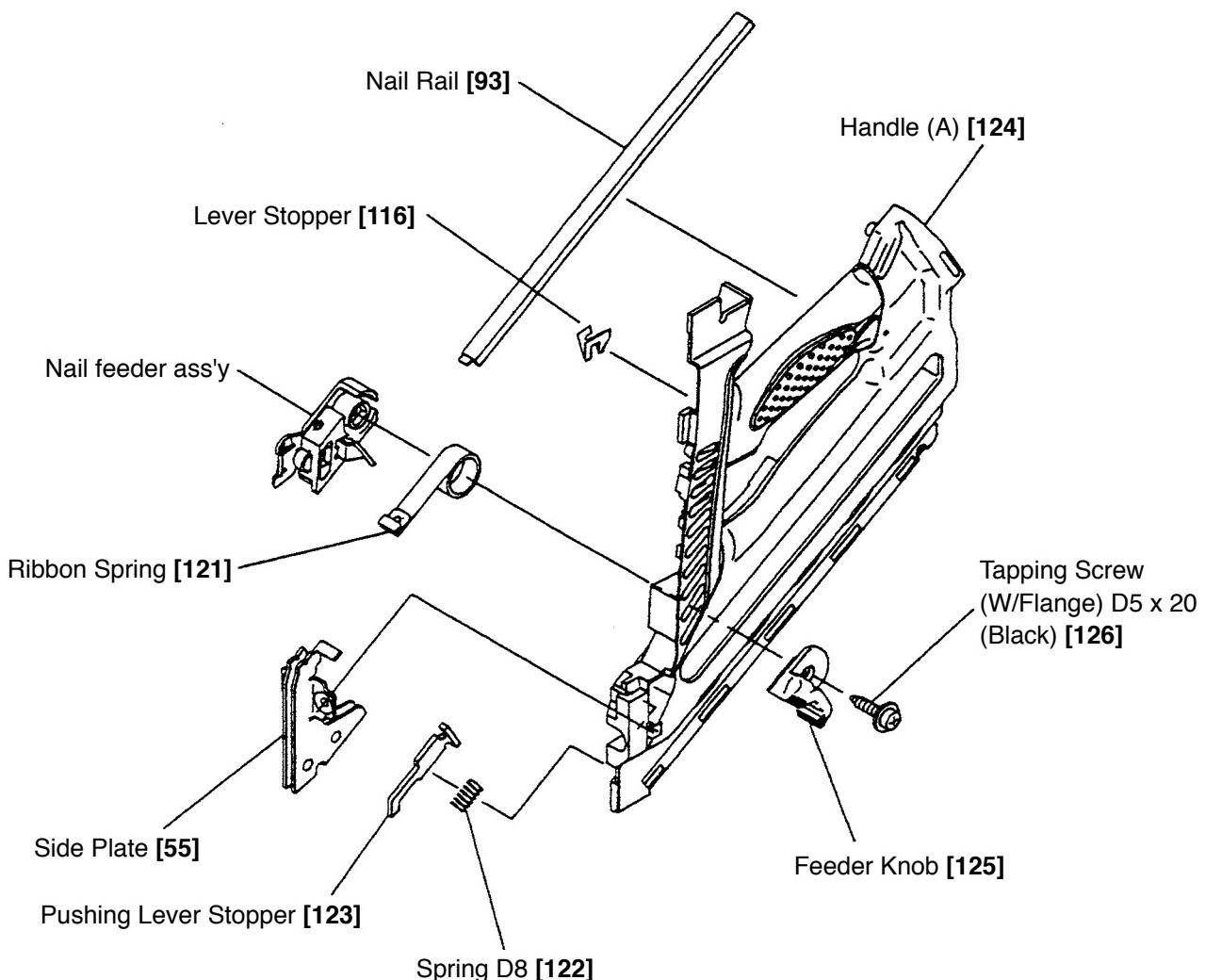
(2) Disassembly and reassembly of Handle (A) [124], nail feeder and the related parts (Fig. 51)

[Tools required]

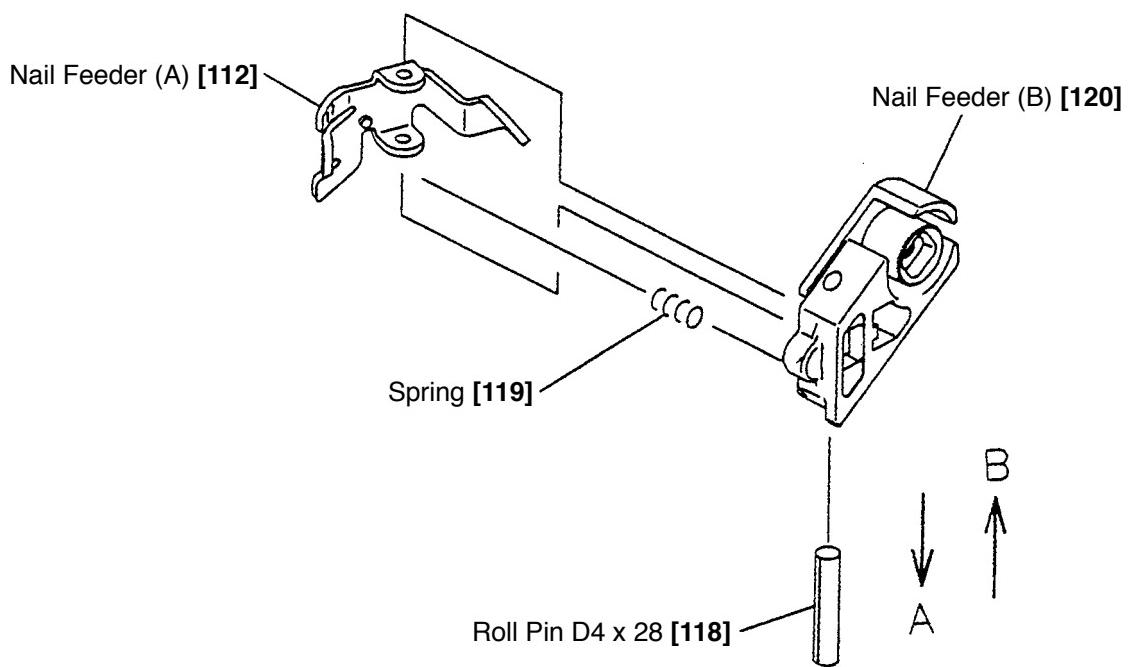
- Phillips screwdriver
- Roll pin puller (4 mm (0.157"))

(a) Disassembly

- Remove the Lever Stopper [116] from the trigger of Handle (A) [124] with a hand.
- Remove the Nail Rail [93] with a hand.
- Loosen the Tapping Screw (W/Flange) D5 x 20 (Black) [126] and remove the Feeder Knob [125]. Then the nail feeder ass'y can be removed.
- Remove the Side Plate [55]. Then the Ribbon Spring [121], Spring D8 [122] and Pushing Lever Stopper [123] can be removed.
- Remove the Roll Pin D4 x 28 [118] in "A" direction as shown in Fig. 52. Then Nail Feeder (A) [112], Spring [119] and Nail Feeder (B) [120] can be removed.



**Fig. 51**



**Fig. 52**

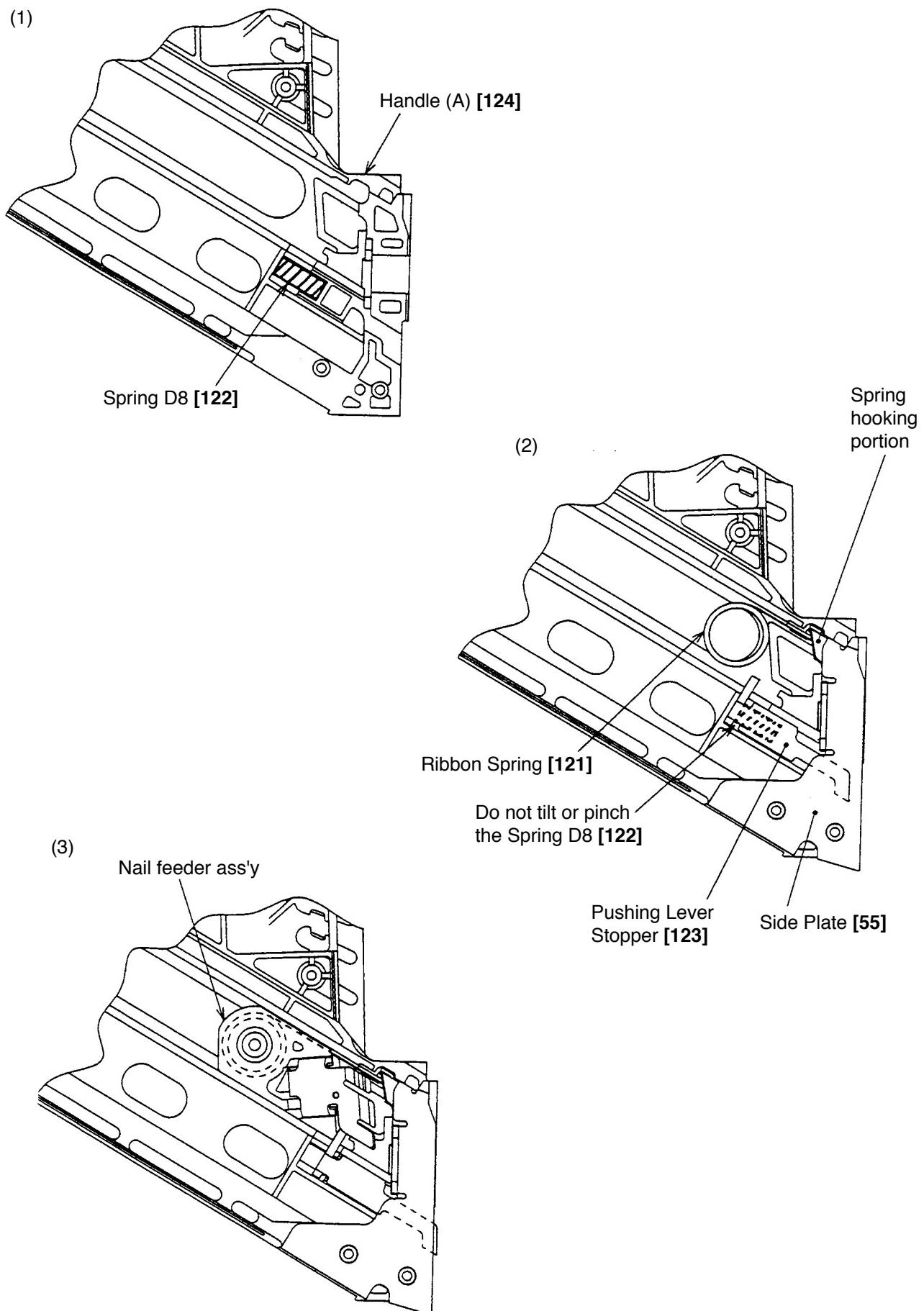


Fig. 53

## (b) Reassembly

Perform reassembly according to the following procedure.

- Mount Nail Feeder (A) [112] and the Spring [119] to Nail Feeder (B) [120] and drive the Roll Pin D4 x 28 [118] in "B" direction as shown in Fig. 52 to secure it. Do not protrude the end of the Roll Pin D4 x 28 [118] from Nail Feeder (B) [120].
- See Fig. 53.
  - (1) Fit the Spring D8 [122] in Handle (A) [124].
  - (2) Set the Pushing Lever Stopper [123] on the Spring D8 [122]. Do not tilt the Spring D8 [122] or insert the Pushing Lever Stopper [123] into the Spring D8 [122]. Check that the Pushing Lever Stopper [123] moves smoothly. Keep holding the Pushing Lever Stopper [123] with fingers until the Side Plate [55] is mounted because the Pushing Lever Stopper [123] is apt to be removed. Set the Ribbon Spring [121] to Handle (A) [124]. Mount the Side Plate [55] to Handle (A) [124] with the spring hooking portion of the Side Plate [55] engaged with the hook of the Ribbon Spring [121].
  - (3) Insert a finger into the coil portion of the Ribbon Spring [121] from the front of Handle (A) [124]. Stretch the coil portion in the nail feeder pulling direction. Then set the nail feeder to the coil portion and return the nail feeder to the forward position slowly. Mount the Feeder Knob [125] to the nail feeder and tighten the Tapping Screw (W/Flange) D5 x 20 (Black) [126].
- Apply grease to the Lever Stopper [116] and mount it to the specified position on the handle. Push in the Lever Stopper [116] as far as it will go with a roll pin puller to engage with the convex portion of Handle (A) [124] (Fig. 54-1).

Apply grease to the surface where Handle (A) [124] contacts (prevention of dropping).

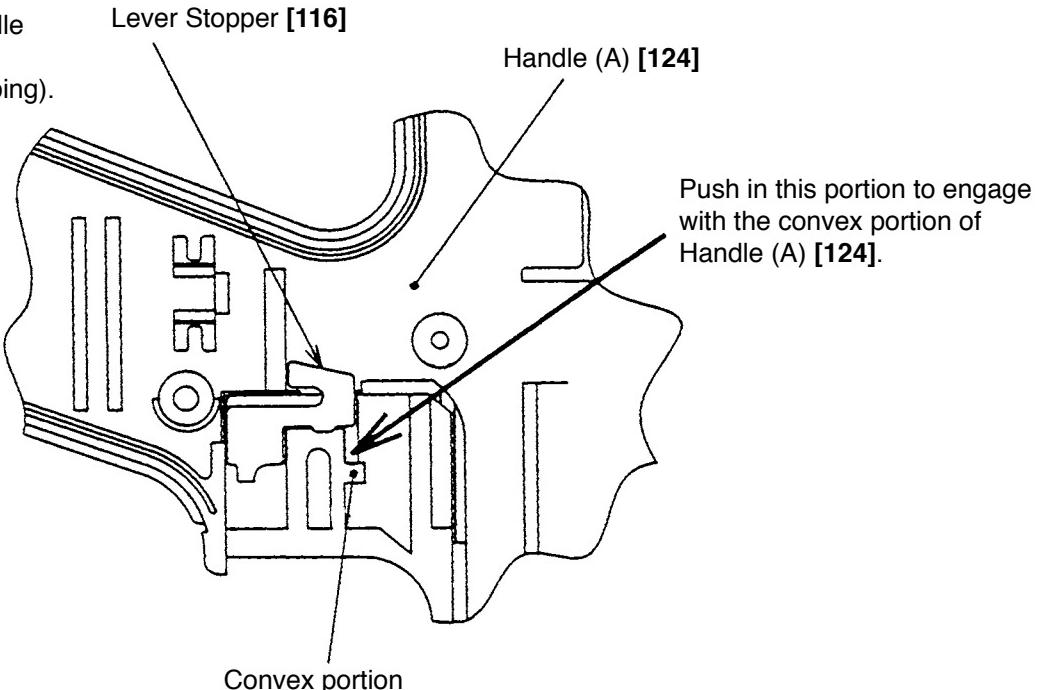


Fig. 54-1

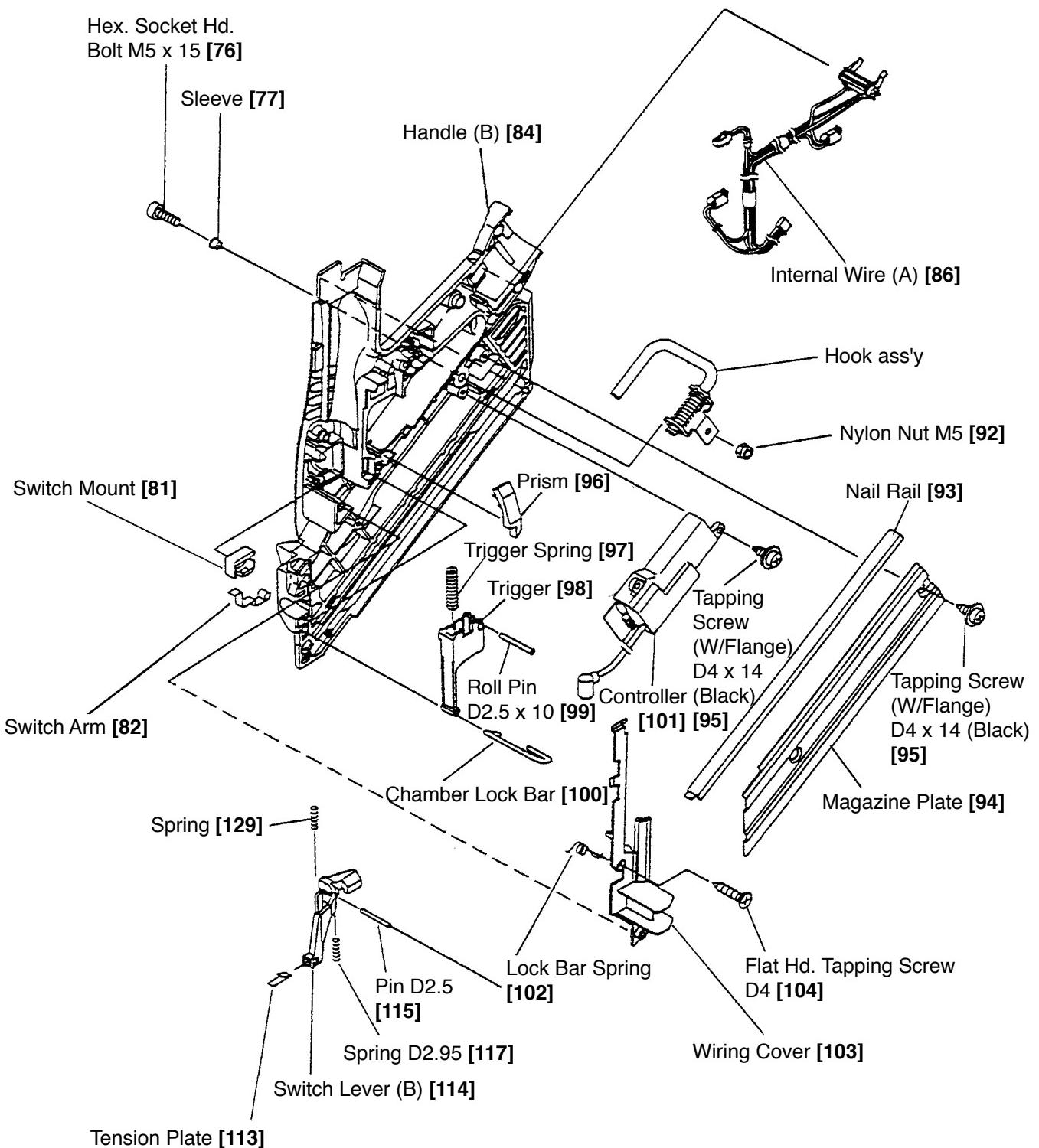
(3) Disassembly and reassembly of Handle (B) [84], Controller [101] and the related parts

[Tools required]

- Spanner
- Hex. bar wrench (4 mm)
- Phillips screwdriver
- Roll pin puller (2.5 mm (0.098"))

(a) Disassembly (See Fig. 54-2.)

- Remove the Trigger Spring [97] and the Chamber Lock Bar [100].
- Remove the Pin D2.5 [115] and Switch Lever (B) [114].
- Remove the Tension Plate [113] from Switch Lever (B) [114].
- Remove the Tapping Screw (W/Flange) D4 x 14 (Black) [95] to remove the Magazine Plate [94].
- Remove the Prism [96].
- Remove the Flat Hd. Tapping Screw D4 [104] to remove the Wiring Cover [103].
- Remove the Switch Arm [82] and the Lock Bar Spring [102].
- Remove the Tapping Screw (W/Flange) D4 x 14 (Black) [95] to remove the Controller [101] and Internal Wire (A) [86]. Disconnect the connector of the Controller [101] and Internal Wire (A) [86]. Remove the Roll Pin D2.5 x 10 [99] with a roll pin puller to remove the Trigger [98].
- Remove the Switch Mount [81] from Internal Wire (A) [86].
- Remove the Nylon Nut M5 [92] and the Hex. Socket Hd. Bolt M5 x 15 [76].
- Remove the Sleeve [77] and the hook ass'y.



**Fig. 54-2**

(b) Reassembly

Reassembly procedures should be followed in the reverse order. Note the following points.

- Be careful of the split direction of the Roll Pin D2.5 x 10 [99] when mounting the Trigger [98] and Internal Wire (A) [86]. Do not damage the plunger of the switch (Fig. 55).
- Perform wiring of the Controller [101] and Internal Wire (A) [86] as shown in Fig. 56. Position the other parts as shown in Fig. 56. Do not apply tension to the high-voltage cable of the Controller [101] and the connector of Internal Wire (A) [86] (Fig. 56).
- Mount the Wiring Cover [103] to Handle (B) [84] then hang the Chamber Lock Bar [100] on the ring of the Lock Bar Spring [102]. Hang the magazine plate on the claw of Handle (B) [84] (3 places) (Fig. 58).
- Be careful of the mounting direction of the Tension Plate [113] (Fig. 59).

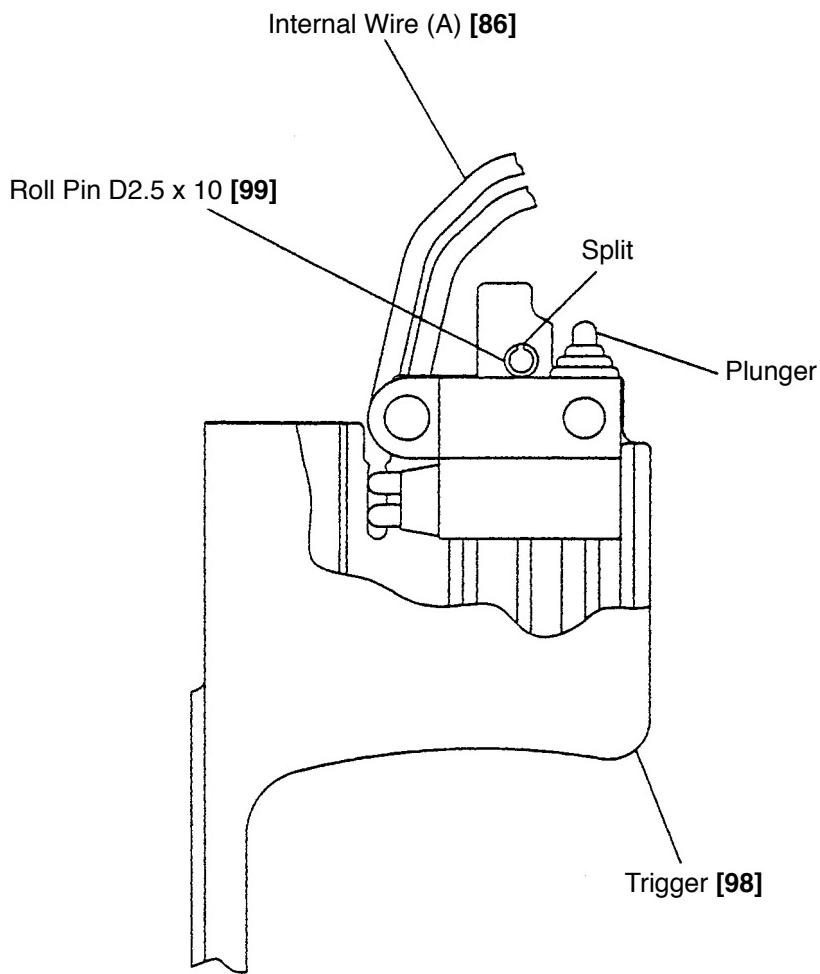


Fig. 55

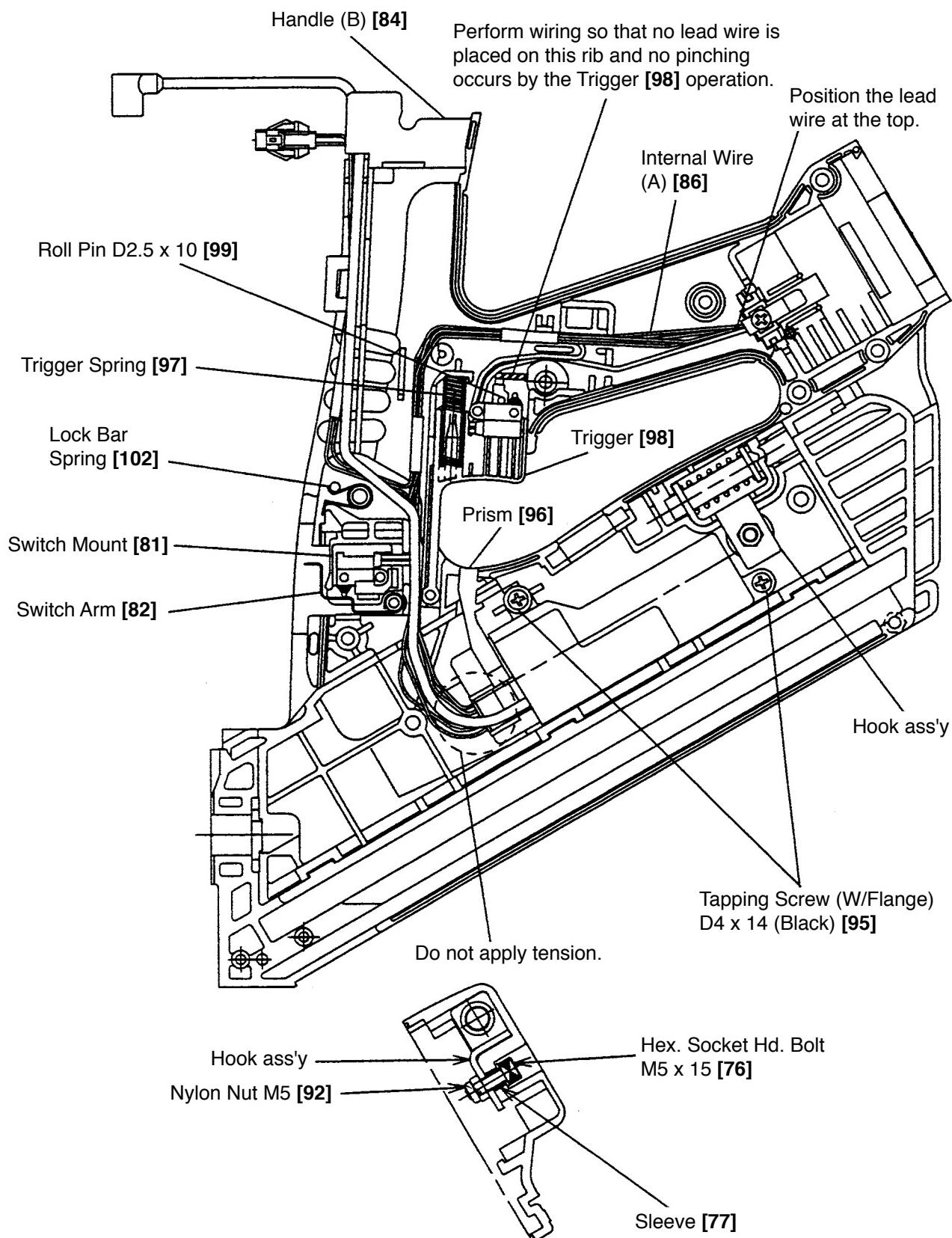


Fig. 56

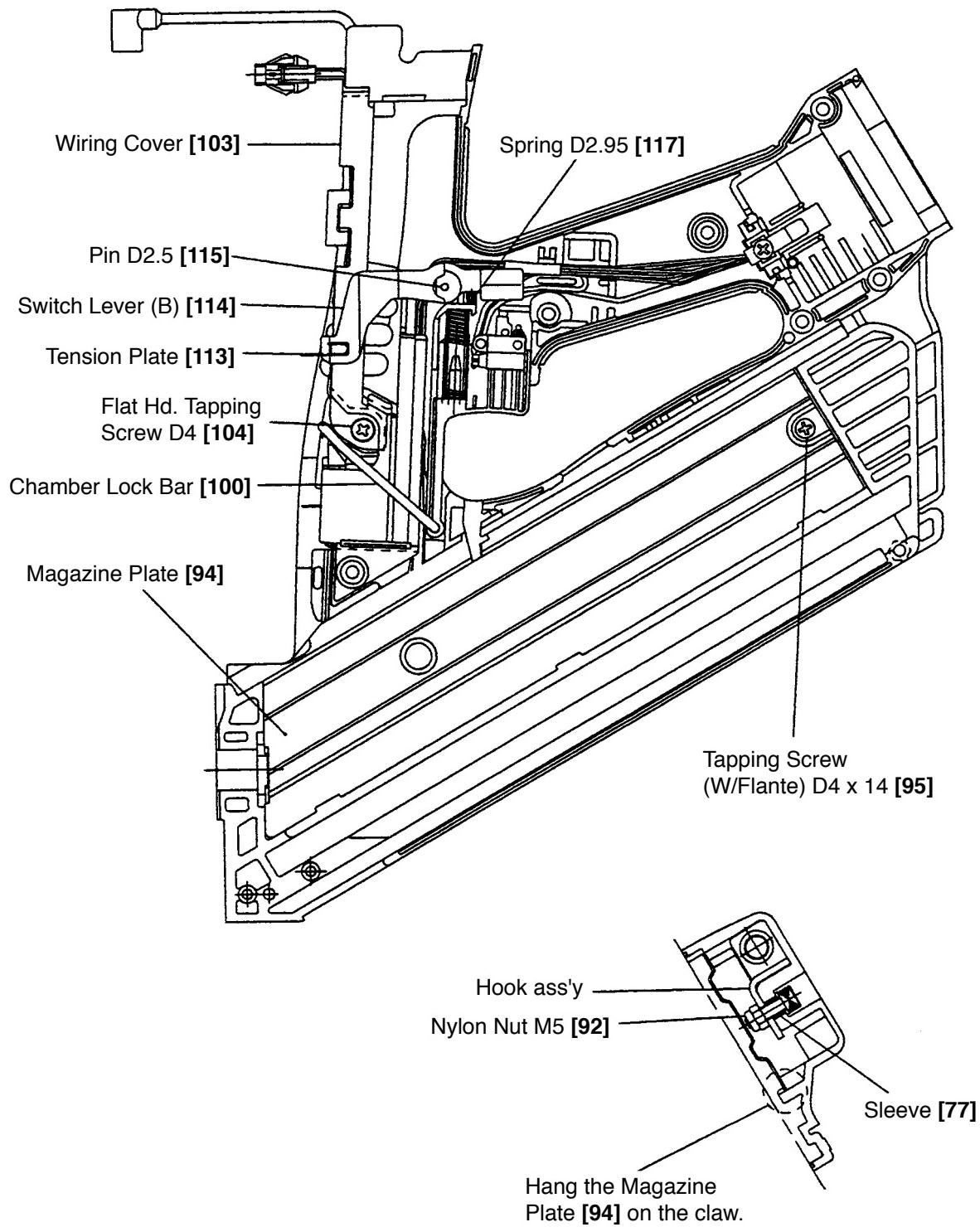
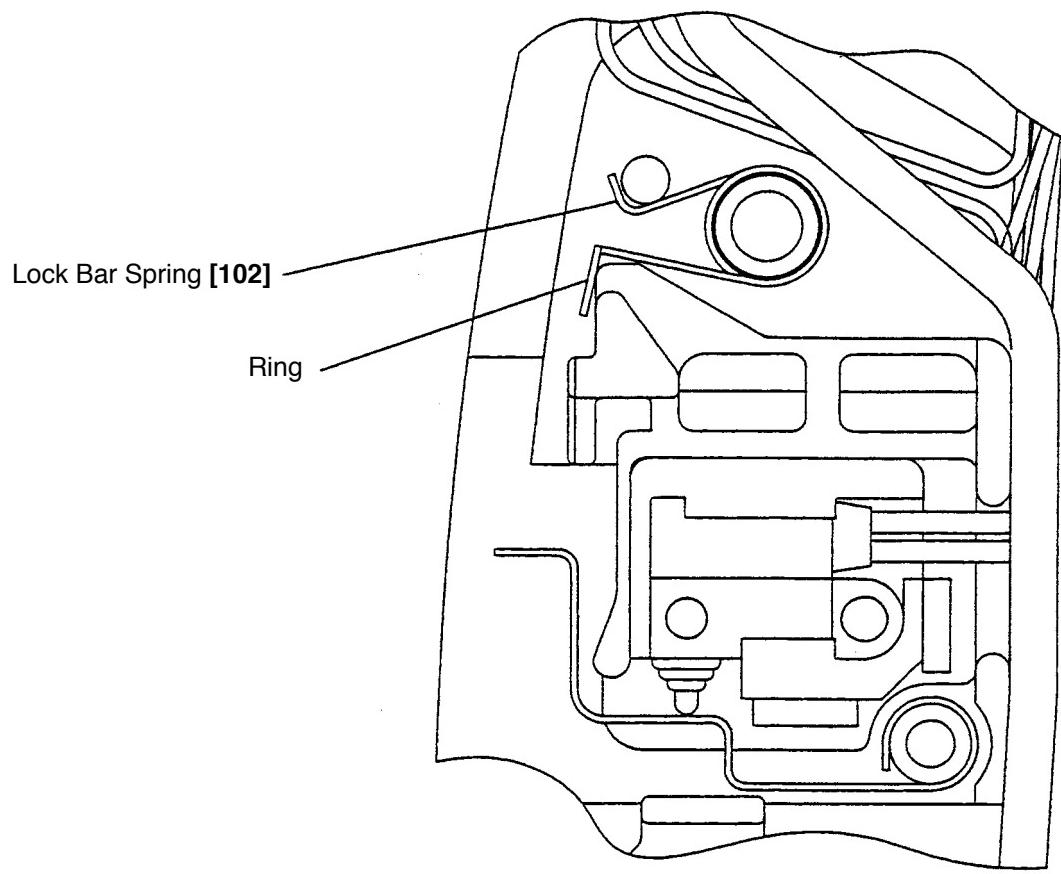
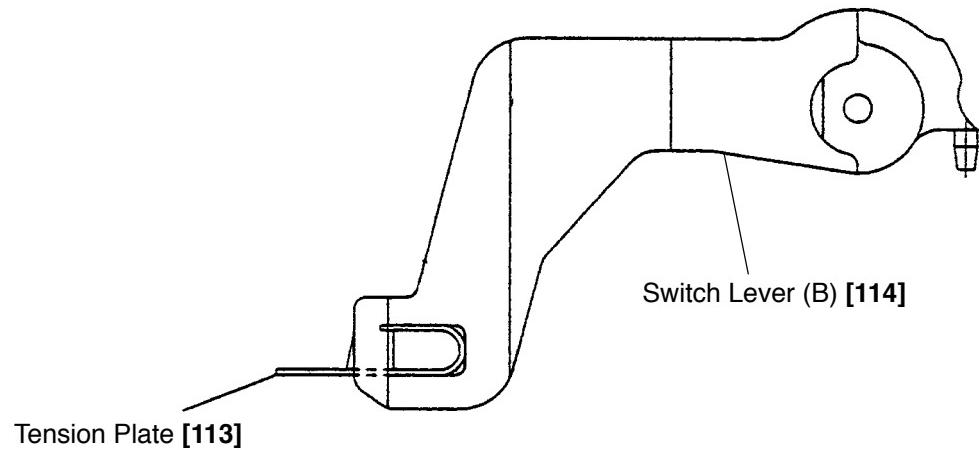


Fig. 57



**Fig. 58**



**Fig. 59**

(3) Disassembly and reassembly of hook and the related parts (Fig. 60)

[Tools required]

- Roll pin puller (4 mm (0.157"))
- Flat-blade screwdriver

(a) Disassembly

- Remove the Roll Pin D3 x 14 [87]. Then the Hook [88], Washer (B) [89] and Spring D12 [90] can be removed from the Bracket [91].

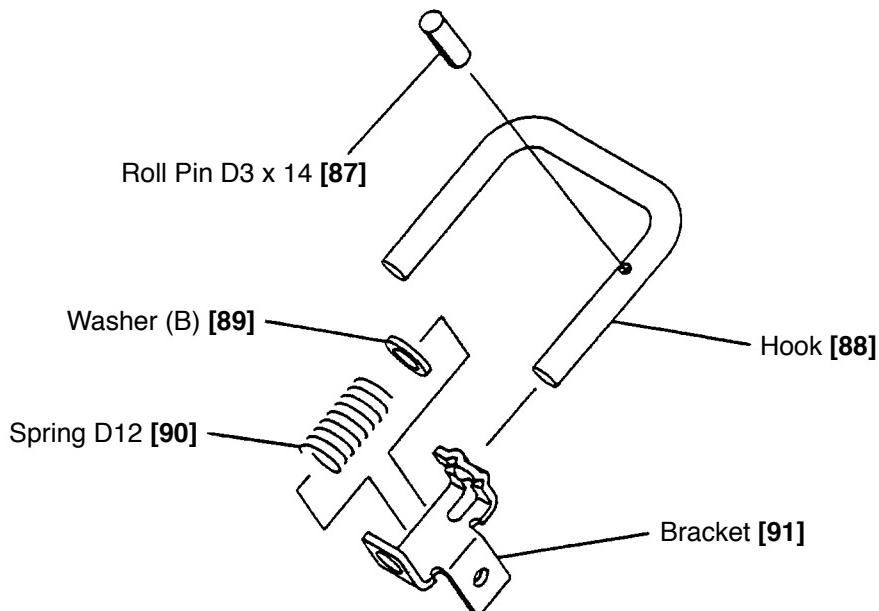


Fig. 60

(b) Reassembly

- Mount the Hook [88], Washer (B) [89] and Spring D12 [90] to the Bracket [91].
- Drive the Roll Pin D3 x 14 [87] into the Hook [88] in the direction as shown in Fig. 60.

It becomes easy to reassemble if the clearance between the Bracket [91] and Washer (B) [89] is widened with a flat-blade screwdriver beforehand. Note that the cross groove of the Bracket [91] must be aligned with the Hook [88] properly. Perform reassembly in the proper direction as shown in Fig. 61.

- After reassembly, rotate the Hook [88] and check that the Roll Pin D3 x 14 [87] does not protrude from the Bracket [91] (Fig. 62).

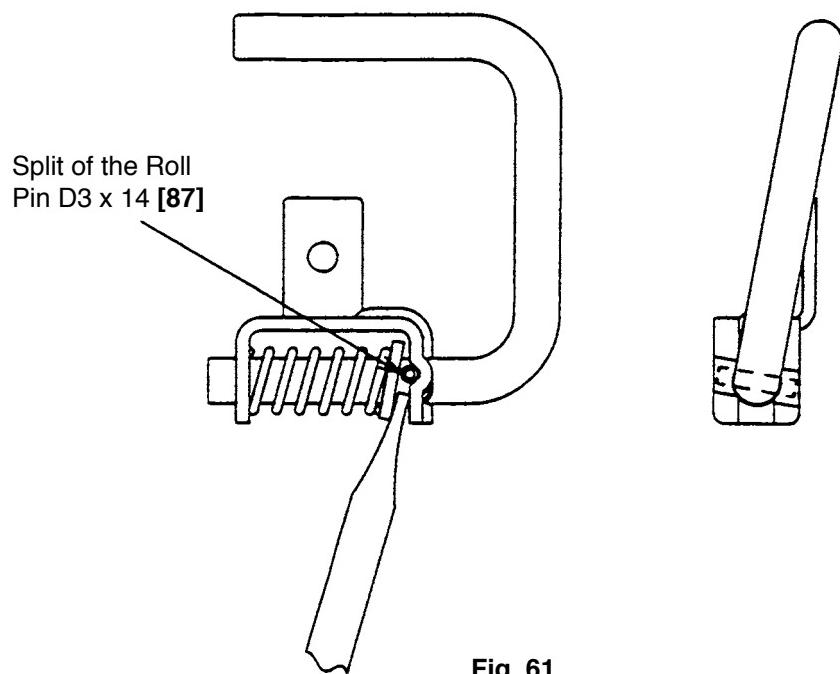


Fig. 61

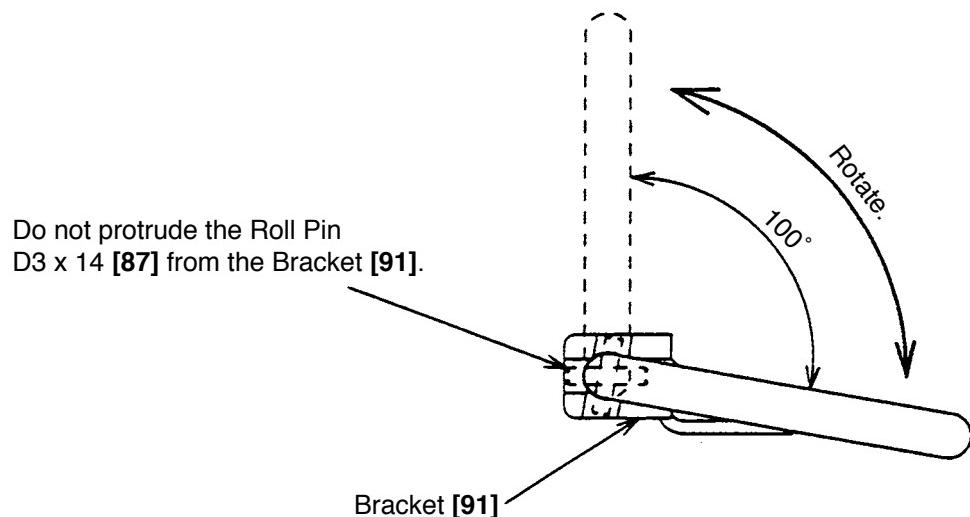


Fig. 62

## 11. INSPECTION AND CONFIRMATION AFTER REASSEMBLY

(1) Check only the main body for the following.

- Check that the Pushing Lever [64] does not operate when the Feeder Knob [125] is at the forward end.
- Check that the Pushing Lever [64] operates smoothly when the Feeder Knob [125] is pulled backward.
- Check that the Trigger [98] operates smoothly.
- Check that the Cell Lever [105] operates smoothly when pressing the Pushing Lever [64] against a workpiece.
- Press the Pushing Lever [64] against a workpiece and depress the Trigger [98]. Check that the chamber ass'y is held at the top dead center and it does not return to the bottom dead center even if the Pushing Lever [64] is released. Release the Trigger [98] and check that the chamber ass'y returns to the bottom dead center.

(2) Check the main body with the battery loaded for the following.

- Check that the Prism [96] lights.
- Check that the Fan [20] rotates when pressing the Pushing Lever [64] against a workpiece.
- Check that the Fan [20] stops about 6 to 7 seconds after the Pushing Lever [64] is released.

(3) Check the main body with the battery, fuel cell and nails loaded for the following.

- Check that no nail is driven just by depressing the Trigger [98]. Check that no nail is driven just by pressing the Pushing Lever [64] against a workpiece (check that the Fan [20] is rotating).
- Check that the Pushing Lever [64] operates smoothly.
- Check that the piston returns to the top dead center by driving a nail actually (do not drive nails continuously to prevent idle driving).
- Press the Pushing Lever [64] against a workpiece and depress the Trigger [98] partway to hold the Chamber [24] at the top dead center. Then release the Pushing Lever [64] and depress the Trigger [98] fully to check that no nail is driven.
- Check that no nail is driven when pressing the Pushing Lever [64] against a workpiece with the Trigger [98] depressed.

(4) Perform the following after the above checking.

- Check that the main body is not loaded with the battery, fuel cell and nails.
- Recheck the tightening torque of each screw.
- Set the Pushing Lever [64] to the uppermost position (nails are driven to the deepest position).

## 12. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable Fixed	10	20	30	40	50	60	70 min.
(NR 90GC)								

Work Flow

```

graph TD
    GA[General Assembly] --> TopCover[Top Cover]
    GA --> Filter[Filter]
    GA --> FilterCover[Filter Cover]
    GA --> PushingLever[Pushing Lever]
    GA --> PushingStopper[Pushing Stopper]
    SP[Spark Plug A O-ring] --> CHead[Cylinder Head Motor Mount Fan]
    SP --> Piston[Piston O-ring Piston Ring x 2 Piston Bumper]
    CHead --> CG[Blade Guide Side Plate Cylinder Plate]
    CG --> PL[Pushing Lever Arm A B Spring]
    CH[Chamber Head Gasket A Chamber] --> CHAssy[Housing Ass'y]
    CHAssy --> Trigger[Trigger Trigger Spring]
    CHAssy --> Controller[Controller Lead Wire A Prism]
    CHAssy --> MagazinePlate[Magazine Plate Nail Rail Nail Feeder A Nail Feeder B Ribbon Spring Feeder Knob]
    ADJ[Adjustment Cylinder] --> ADJ
  
```

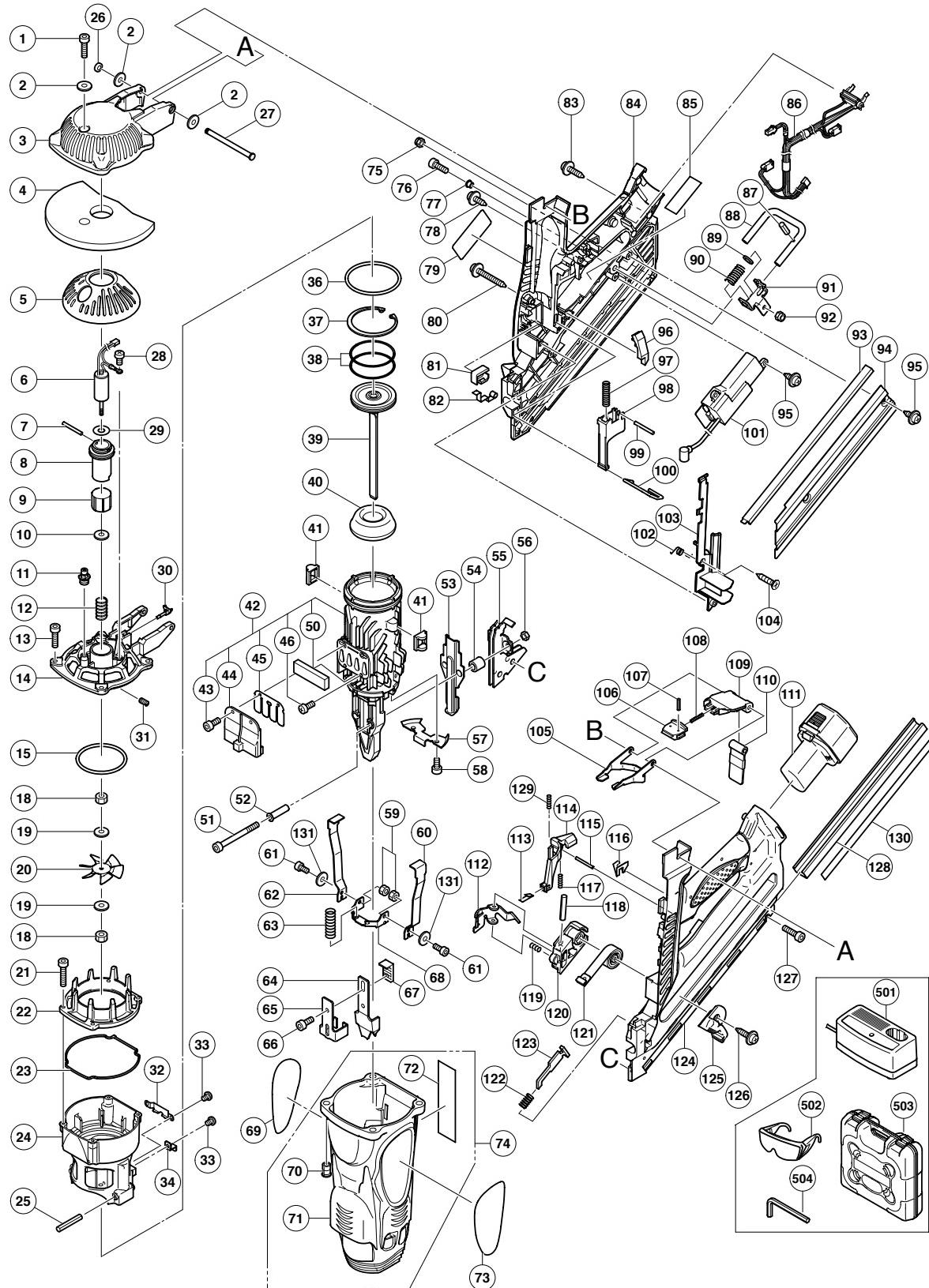
The diagram illustrates the repair work flow for the NR 90GC model. It starts with the 'General Assembly' stage, which includes the Top Cover, Filter, Filter Cover, Pushing Lever, and Pushing Stopper. These parts feed into the 'Spark Plug (A) O-ring' stage. From there, the flow splits into two main paths. One path leads to the 'Cylinder Head Motor Mount Fan' and the 'Piston O-ring Piston Ring x 2 Piston Bumper' stages. The other path leads to the 'Chamber Head Gasket (A) Chamber' stage, which then feeds into the 'Housing Ass'y' stage. The 'Housing Ass'y' stage further branches into the 'Trigger Trigger Spring Switch Lever (B)', 'Controller Lead Wire (A) Prism', and 'Magazine Plate Nail Rail Nail Feeder (A) Nail Feeder (B) Ribbon Spring Feeder Knob' stages. Finally, the 'Adjustment (Cylinder)' stage is reached.

## GAS TOOL PARTS LIST

### ■ GAS STRIP NAILER Model NR 90GC

2005 · 9 · 30

(E3)



**PARTS**

NR 90GC

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	949-665	HEX. SOCKET HD. BOLT M5X14 (10 PCS.)	1		
2	949-424	WASHER M5 (10 PCS.)	3		
3	885-353	TOP COVER	1		
4	885-274	FILTER	1		
5	885-275	FILTER COVER	1		
6	885-309	MOTOR	1		
7	885-318	ROLL PIN D2.5X25	1		
8	885-310	MOTOR MOUNT	1		
9	885-314	MOUNT SLEEVE	1		
10	885-320	SHAFT WASHER	1		
11	885-333	SPARK PLUG (A)	1		
12	885-319	MOTOR SPRING	1		
13	949-757	HEX. SOCKET HD. BOLT M5X20 (10 PCS.)	4		
14	885-308	CYLINDER HEAD	1		
15	885-316	O-RING (I.D 59.92)	1		
18	949-554	NUT M4 (10 PCS.)	2		
19	949-423	WASHER M4 (10 PCS.)	2		
20	885-311	FAN	1		
21	949-754	HEX. SOCKET HD. BOLT M4X16 (10 PCS.)	4		
22	885-294	CHAMBER HEAD	1		
23	885-295	GASKET (A)	1		
24	885-296	CHAMBER	1		
25	884-975	ROLL PIN D3X32	2		
26	880-319	SHAFT RING	1		
27	885-277	SHAFT	1		
28	949-214	MACHINE SCREW M4X6 (10 PCS.)	1		
29	885-313	RUBBER WASHER	1		
30	885-317	ADAPTER	1		
31	961-681	HEX. SOCKET SET SCREW M4X5	2		
32	885-297	CHAMBER LOCK PLATE	1		
33	949-214	MACHINE SCREW M4X6 (10 PCS.)	3		
34	885-306	SWITCH PLATE	1		
36	885-283	O-RING (I.D. 66.27)	1		
37	885-285	RETAINING RING	1		
38	885-286	PISTON RING	2		
39	885-291	PISTON	1		
40	885-289	PISTON BUMPER	1		
41	885-284	CHAMBER STOP RUBBER	2		
42	885-361	CYLINDER ASS'Y	1	INCLUD. 43-46, 50	
43	949-812	HEX. SOCKET HD. BOLT M4X10 (10 PCS.)	2		
44	885-287	BUFFER COVER	1		
45	885-290	LEAD VALVE	1		
46	949-214	MACHINE SCREW M4X6 (10 PCS.)	2		
50	885-288	MUFFLER	1		
51	949-897	HEX. SOCKET HD. BOLT M5X50 (10 PCS.)	2		
52	885-269	NOSE SLEEVE	2		
53	885-355	BLADE GUIDE	1		
54	885-270	PLATE SLEEVE	2		
55	885-326	SIDE PLATE	1		
56	945-255	U-NUT M5	2		
57	885-299	CYLINDER PLATE	1		

**PARTS**

NR 90GC

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS		
58	980-046	SEAL LOCK HEX. SOCKET HD. BOLT M5X10	2			
59	956-329	U-NUT M4	2			
60	885-302	PUSHING LEVER ARM (A)	1			
61	949-812	HEX. SOCKET HD. BOLT M4X10 (10 PCS.)	2			
62	885-303	PUSHING LEVER ARM (B)	1			
63	885-305	PUSHING LEVER SPRING	2			
64	885-271	PUSHING LEVER	1			
65	885-273	PUSHING STOPPER	1			
66	949-819	HEX. SOCKET HD. BOLT M5X10 (10 PCS.)	1			
67	885-272	ADJUSTER BUSH (S)	1			
68	885-301	PUSHING LEVER CONNECTOR	1			
69		NAME PLATE	1			
70	885-304	SCREW M5	4			
71	885-298	HOUSING	1			
72	885-307	INSULATOR SHEET	1			
73		HITACHI LABEL	1			
74	885-362	HOUSING ASS'Y	1	INCLUD. 70-72		
75	876-465	NYLON NUT M4	1			
76	949-820	HEX. SOCKET HD. BOLT M5X15 (10 PCS.)	1			
77	878-164	SLEEVE	1			
78	305-812	TAPPING SCREW (W/FLANGE) D4X16 (BLACK)	1			
79		WARNING LABEL	1			
80	301-815	TAPPING SCREW (W/FLANGE) D4X45	1			
81	885-334	SWITCH MOUNT	1			
82	885-347	SWITCH ARM	1			
83	302-086	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	4			
84	885-330	HANDLE (B)	1			
85		CAUTION PLATE	1			
86	885-332	INTERNAL WIRE (A)	1			
87	949-900	ROLL PIN D3X14 (10 PCS.)	1			
88	885-343	HOOK	1			
89	956-161	WASHER (B)	1			
90	885-345	SPRING D12	1			
91	885-344	BRACKET	1			
92	877-371	NYLON NUT M5	1			
93	885-341	NAIL RAIL	1			
94	885-342	MAGAZINE PLATE	1			
95	309-933	TAPPING SCREW (W/FLANGE) D4X14 (BLACK)	3			
96	885-338	PRISM	1			
97	885-336	TRIGGER SPRING	1			
98	885-335	TRIGGER	1			
99	949-551	ROLL PIN D2.5X10 (10 PCS.)	1			
100	885-340	CHAMBER LOCK BAR	1			
*	101	885-331	CONTROLLER	1		
*	101	885-595	CONTROLLER	1	FOR USA, CAN	
102	885-337	LOCK BAR SPRING	1			
103	885-339	WIRING COVER	1			
104	885-346	FLAT HD. TAPPING SCREW D4	1			
105	885-276	CELL LEVER	1			
106	885-280	LATCH	1			
107	949-859	ROLL PIN D2X8 (10 PCS.)	2			

## PARTS

NR 90GC

## **STANDARD ACCESSORIES**

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
501		CHARGER (MODEL UC 7SD)	1		
502	875-769	SAFETY GLASSES	1		
503	885-360	CASE	1		
504	944-458	HEX. BAR WRENCH 4MM	1		

## OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601	885-246	LUBRICANT OILER (A)	1		
601	885-546	LUBRICANT OILER (A)	1	FOR USA, CAN	
602	317-918	GREASE (ATTOLUB NO. 2) 500G	1		

